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A STUDY OF THE OCCIPITO-POSTERIOR POSITIONS OF THE VERTEX

ANALYSIS, MANAGEMENT AND RESULTS IN 106 CONSECUTIVE CASES

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In a study of occipitoposterior positions of the vertex, one should turn to the three fundamental branches of medicine—anatomy, physiology and pathology—in order to obtain the foundation for the understanding of this complicating obstetric problem.

The anatomy should include the normal female pelvic measurements and the normal measurements of the fetal head. The physiology should give one the mechanism of the engagement of the fetal head in a maternal pelvis, and the pathology the abnormal factors present when the fetal head tries to engage in the posterior position. It should explain how this position differs from the normal engagement of the occiput anterior.

The fetal head presents at the pelvic brim in a military attitude, sitting erect on the shoulders. The diameters opposing each other are the occipitofrontal of from 11 to 11.5 cm. and the suboccipitobregmatic of from 9 to 9.5 cm., while the normal pelvis presents at the inlet an anterior-posterior diameter of 11 cm., a transverse diameter of 13.5 cm. and an oblique diameter of 12.75 cm. As the head presents at the pelvic brim, the anterior and posterior fontanels are in the same pelvic plane and meet equal resistance. The head and axis of the body at this time can be compared to a two arm lever, the fulcrum of which is at the junction of the spine with the occipital condyles. The anterior or sincipital end of the fetal head is normally longer than the posterior or occipital end. As the uterus contracts, the fetal spine is straightened and the head descends. The sinciput and occiput meet equal resistances in the bony pelvis, the cervix and the levator ani muscles; the longer or anterior end of the fetal head is held back while the shorter or occipital end descends, and the result is flexion. This flexion changes the engaging part from an anteroposterior diameter of from 11 to 11.5 cm. into a suboccipitobregmatic diameter of from 9 to 9.5 cm. The occiput, the most dependent or leading portion of the fetal head, strikes the pelvic floor, made up mainly of the levator ani muscles, which hang like a sling to form a trough, the sides of which point downward, inward and forward, directing the occiput or leading part into the anterior position, where it escapes beneath the symphysis pubis.

PATHOLOGY OF ENGAGEMENT AND DESCENT

In occipitoposterior positions the mechanism is disturbed, and instead of the normal suboccipitobregmatic diameter of 9.5 cm. one has the occipitofrontal diameter of 11.5 cm. trying to get into the pelvic brim. When the occiput is anterior the parietal eminences have sufficient room in the widely dilated anterior portion of the pelvis; but when the occiput is posterior these eminences are impinged on by the promontory of the sacrum retarding and preventing engagement of the head.

The occipitoposterior position may terminate in one of two ways: First, the least frequent but the most formidable type of case is when pain continues, the cervix dilates but the head remains high. Progress comes to a standstill, deflection occurs and a brow may develop. The second, most common, but least formidable type of case is when the cervix dilates, partial flexion takes place, and the occiput descends to terminate in one of three ways: (1) if pain continues strong with forceful uterine and voluntary contractions of the muscles, the occiput strikes the pelvic floor and rotates downward, inward and forward, where it can be delivered in the normal position; (2) the occiput, taking the lead, descends into the pelvis but is arrested in the transverse position; (3) the occiput finds it easier to rotate posteriorly and passes into the hollow of the sacrum, where it is delivered as such.

ETIOLOGY

The one constant finding in occipitoposterior positions of the vertex is deflection or failure of flexion of the fetal head. This presents the problem of the larger occipitofrontal diameter entering the pelvic brim rather than the shorter and normal suboccipitobregmatic diameter.

There are many causes given in textbooks for this posterior position, the various authors enumerating anomalies of three groups: (1) anomalies of flexion, (2) pendulous abdomen and (3) primary brachycephalia, the latter a condition in which the anterior and posterior ends of the fetal head are of equal length. The very frequent occurrence of this posterior position (from 25 to 35 per cent) would almost place it in a class of normal.

From our experience we have concluded that those cases in which flexion and rotation fail to occur present another condition which is an anomaly of the pelvis. This distortion of the female pelvis is usually a contraction of the type designated as the simple flat pelvis

All of the cases presented here were from private practice.

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in which the anteroposterior diameter of the inlet is shortened, owing to the slipping downward of the promontory of the sacrum.

DIAGNOSIS

Diagnosis is accomplished by palpation of the fetal extremities anterior and to the left when the occiput is in the right posterior position. The fetal heart, although expected to be on the right and posterior,

Fig. 1.—Fetal head presents in the military attitude. Occipitofrontal diameter attempting engagement. (After De Lee.)

may be anterior on the left, owing to the fetal thorax being anterior and transmitting the sound into the latter position. For this reason the location of the fetal heart sound may, if depended on, lead to serious error in diagnosis and treatment. If the cephalic prominence is on the left, it suggests the right position.

Table 1.—*Grouped According to Parity*

Gravida	Number of Cases
1	69
2	30
3	7
4	7
5	1
6	1
7	1
8	1
No data	4

Table 2.—*Grouped According to Age*

Age	Number of Cases
20 to 30	70
30 to 40	28
Under 20	2
No data	6

If, in the presence of normal pelvic measurements, the head remains unengaged in labor, a posterior position is suggested. Any instance in which a primiparous woman begins labor by rupturing the membranes without previous pain suggests a posterior position. Vaginally, one can more frequently feel the large fontanel when the occiput is posterior, for this fontanel is then in a lower position, owing to the military attitude of the fetal head.

It is our practice before applying forceps always to palpate the ear and thereby determine beyond a doubt the exact position of the head.

TREATMENT

The treatment of the occipitoposterior position cannot be set forth in ironclad rules, but there are certain principles which guide our technic. These are as follows:

1. Prophylaxis: Antepartum pelvimetry is important in detecting anomalies, especially the common flat pelvis.

2. It is important to preserve the patient's strength by giving easily digestible and nourishing foods.

3. Previously we have thought it important to prevent a large amount of pain by heavy sedation, but experience has taught us that this frequently results

Table 3.—*Multiparas with Previous Abnormalities of Pregnancy*

Type of Abnormality	Number of Cases
Forceps delivery	7
Infection	2
Hydrocephalus	2
Long labor	8
Cesarean section	1
Eclampsia	2
Face presentation	1
No difficulty	8

in less uterine contraction, uncontrollability of the patient, delay of the first stage of labor and the necessity for a more radical form of delivery. We now feel that it is much better to allow the patient to undergo the first stage of labor with light sedation, maintaining the conscious state and cooperation of the patient. If fatigue develops, it is better to give a substantial dose of medication occasionally (morphine one-fourth grain, or 0.016 Gm.), allowing her a number of hours of rest and then permitting her to proceed as previously. This morphine is never administered closer than four hours to delivery, and it should be stated that we use morphine sparingly and with great caution on account of its depressing effect on the fetus.

4. Preservation of the bag of waters is important in occipitoposterior positions if the head is high and

Fig. 2.—Flexion completed as a result of the longer anterior portion of the fetal head being held back. (After De Lee.)

the presenting part broad, as contraction and retraction are inefficient compared with the normal acutely flexed anterior occiput.

5. In the management there are three things to wait for. These are (*a*) dilatation, (*b*) engagement and (*c*) rotation. While waiting for dilatation we apply a Beck (many tailed) binder and insert a Caldwell pad. The pad can be improvised with a well folded turkish towel.

This should be inserted in the flank corresponding to the position of the fetal back. Caldwell has shown that the intra-uterine fetus responds to pain stimuli, and the irritating pack causes the fetus to move away from

TABLE 4.—*Pelvic Measurements*

Measurements	Number of Cases	Measurements	Number of Cases
True conjugate		**Posterior sagittal**	
7.5 cm.	1	7.0 cm.	1
8.0 cm.	0	8.0 cm.	1
8.5 cm.	4	8.5 cm.	6
9.0 cm.	16	9.0 cm.	6
9.5 cm.	25	9.5 cm.	4
10.0 cm.	27	10.0 cm.	17
10.5 cm.	5	10.0 plus cm.	3
No data	28	10.5 cm.	2
		11.0 cm.	1
Tuberischii		**External conjugate**	
6.0 cm.	0	16.0 cm.	1
6.5 cm.	2	17.0 cm.	10
7.0 cm.	15	17.5 cm.	4
8.25 cm.	5	18.0 cm.	20
7.5 cm.	20	18.5 cm.	9
8.0 cm.	25	19.0 cm.	17
8.5 cm.	14	19.5 cm.	5
9.0 cm.	6	20.0 cm.	9
No data	19	20.5 cm.	3
		21.0 cm.	5
		21.5 cm.	0
		22.0 cm.	2
		22.5 cm.	1
		No data	18

it (anteriorly). If dilatation is unduly delayed, progress may be improved by forcing the anterior end of the fetal head upward and thereby increasing flexion.

6. After complete dilatation, if the head remains unengaged for one hour or more and no disproportion exists we resort to internal podalic version.

If the head engages and comes to the spines, the patient is given two hours or more for rotation, while if the head is below the spines we allow only one hour

this point. Care is taken not to push the head upward, for dislodging it usually results in nonengagement. To apply forceps under such conditions may result in grave danger to mother and baby.

7. As will be seen from the following data, the delivery is usually then completed by the application of the axis traction forceps in mid or low mid pelvis. In this case the right blade (in the right position) is ordinarily introduced first in an effort to maintain the anterior rotation accomplished manually. However, outlet forceps are often all that is necessary, and occasionally the patient is permitted to deliver spontaneously. It is often an aid in fixing the head in the anterior position to have an assistant apply pressure over the breech until the forceps have been applied or until a few labor pains have driven the head deeper into the pelvis.

TABLE 5.—*Loss of Blood and Length of Labor*

Postpartum hemoglobin	
Lowest	37%
Highest	80%
Average	69%
Loss of blood	
Largest (estimated)	650 cc.
Average (estimated)	164 cc.
Length of first stage of labor	
Longest	96 hours
Shortest	1¼ hours
Average	23 hours
Length of second stage of labor	
Longest	55 hours
Shortest	5 minutes
Average	3 hours
Length of total labor	
Longest	108 hours
Shortest	2 hrs. 40 min.
Average	29¼ hours
Average length of third stage of labor twenty minutes	

Fig. 3.—Head in the right occipitoposterior position. (After De Lee.)

Fig. 4.—Partial rotation; occiput in the right transverse position. (After De Lee.)

Fig. 5.—Rotation of the occiput to the right anterior position. (After De Lee.)

or more to accomplish rotation. These rules are necessarily modified according to the indications in each labor. We have learned through experience and results (low fetal mortality) that in certain cases when the physical condition of the patient and the fetus are satisfactory it is better to allow labor to continue for a reasonable length of time than to enter at once (while molding and engagement are yet incomplete) into a technical and difficult instrumental rotation and delivery.

TECHNIC OF MANUAL ROTATION

If the head fails to rotate, we insert the whole hand (left in the right position, right in the left position) and grasp the head between the thumb and fingers with the arm supinated. The head is turned as the arm is pronated, and the free hand of the operator manipulates and pulls the anterior shoulder to the left or to the right. The rotation is carried on until the sagittal suture is near or directly anteroposterior or even beyond

STATISTICAL STUDY

Our statistics were obtained from 106 consecutive and unselected cases, of which twenty-five were referred; eighty-one were our own cases. They include the right occipitoposterior, the right occipitotransverse and the left occipitoposterior and transverse positions. Of the series, fifteen cases were of the left occipitoposterior position; ninety-one cases came under the classification right occipitoposterior or transverse position.

The tabulated material is in some cases incomplete. Where this is true, it is due to inadequacies in the hospital record existing because so often these women were admitted to the hospital after a period of prolonged difficulty in the home. Hence many of them were seen for the first time shortly before therapy was instituted. All records are included here because where one may be incomplete in one detail it may be complete in another, and where percentages are quoted they have

been derived from the available complete data rather than from the series as a whole.

No attempt has been made to consider the transverse position separately. We regard it as having originated from a posterior position, representing an intermediary stage in its rotation to the more favorable anterior

Fig. 6.—While waiting for dilatation we apply a Beck (many tailed) binder.

position. Finally it will be noted that not all the data are strictly pertinent to the posterior position only, but that such items as age and fetal sex seem applicable and more or less constant in any series of statistics on obstetrics.

PREVIOUS COMPLICATION; PELVIC MEASUREMENT

When an obstetric complication occurs because of an abnormality of the bony pelvis, it would be expected that this abnormality would be constant and that the complication would recur were it not for the very definite variable—the size of the fetus. It is therefore of interest to inspect the history of the multiparas in this group with the expectation of finding previous obstetric difficulties.

Accurate pelvic measurements were possible on all patients receiving their antepartum care from us. The more important of these measurements are presented in table 4.

TABLE 6.—*Rupture of Membranes*

	Number of Cases
Before or at onset of labor	18
Artificially, to induce	2
Artificially, after dilatation	12

TABLE 7.—*Analgesics Used*

Analgesic	No. of Cases
Morphine and scopolamine plus scopolamine or magnesium sulfate	76
Morphine and scopolamine plus scopolamine or magnesium sulfate plus ether oil	7
Pentobarbital sodium plus scopolamine	5
Sodium amytal plus scopolamine	4
Chloral, bromides and other drugs	3
No analgesic	18

LOSS OF BLOOD AND LENGTH OF LABOR

The long, hard labor exhausts the woman, depletes her reserves and is often terminated by a difficult instrumental delivery and more than ordinary loss of blood.

TABLE 8.—*Cases Showing Postpartum Fever (100.4 F. for Three Days)*

Diagnosis	Number of Cases
Toxemia	2
Pneumonia	2
Pyelitis	1
Phlebitis	1
Retained secundae	1
Endometritis	3
Anemia	1
Generalized urticaria, endometritis	1

TABLE 9.—*Complications Contributing to Morbidity*

Diagnosis	
Myocardial weakness	2
Mitral heart disease	3
Toxemia	9
Hemorrhage and anemia	2
Pneumonia	2
Lung abscess *	1
Inability to void	2
Hydronephrosis and pyelitis	2
Shock	2
Infection (see table 8)†	5
Influenza	1
Phlebitis	1
Perineal slough	4
Laceration into (not through) sphincter	1
Cesarean section for contracted pelvis	2

* In table 8, listed under first complication, phlebitis.
† Includes endometritis and retained secundae from table 8.

In this connection there was one patient who suffered from postpartum shock who was readily amenable to the usual treatment; also one patient who had predelivery shock, although this was on a different basis,

Fig. 7.—In the manual rotation from the right occipitoposterior position the fetal head is grasped in the left hand, the thumb over the left parietal eminence, the four fingers spread over the right parietal bone, the arm supinated. The operator's right hand assists rotation by forcing the shoulder of the fetus out of the right flank toward the midline.

the cause here being the dangerous administration of solution of posterior pituitary (1 cc.) after a prolonged labor in the home; the result was tetanic contraction of the uterus and shock. The effect of these long labors, although partially counterbalanced by the number of women having small babies and therefore comparatively easy labors, is illustrated in table 5.

PREMATURE RUPTURE OF MEMBRANES

The ill fit of the fetal head resulting from its abnormal position and the pelvic contraction creates distorted pressure on the membranes. For this reason it is not at all unusual for the membranes to rupture before any labor is perceptible to the woman. The same thing is seen in the premature rupture of membranes early in the first stage or at least before the first stage is completed. In a few cases in which there was no disproportion or in which this was slight the membranes were artificially ruptured to induce or to stimulate the ineffectual labor pains so often encountered in these cases.

USE OF ANALGESICS

As previously mentioned, the prolonged, continuous use of analgesics for complete effect is not employed; an attempt is made to preserve the patient's cooperation. However, in affording rest and at least partial or temporary relief of pain, analgesics are a strong factor in conserving the woman's strength.

Fig. 8.—The fetal head is held in the grasp of the operator's hand and the occiput is carried to the right anterior position as the arm is rotated from supination to pronation.

In all cases the delivery was completed under ether, gas-oxygen or gas-oxygen-ether.

MATERNAL MORBIDITY

One would expect that the strain of these hard labors and difficult deliveries would materially contribute to the maternal morbidity, and yet it is surprising to note that the average hospital stay for the group was twelve days—not much longer than for the simpler position. However, the longest hospital stay of 103 days tells a different story, because here was an exhausted woman in whom phlebitis subsequently developed, followed by pneumonia (embolic?) and lung empyema, which was eventually treated by open drainage. The shortest hospital stay in the series was five days.

There were various factors that contributed to this maternal morbidity, not all of which can be directly ascribed to the posterior position. An analysis of these cases is given in tables 8 and 9.

FETAL AND MATERNAL MORTALITY

Whatever the occipitoposterior position is to the mother, it is certain that it is an equal or greater complication in the welfare of the baby. Birth injuries and other calamities should be more frequent in this group. Of the 106 babies delivered from this position there were three fetal deaths and a total of seven babies injured. In reviewing these deaths and injuries, one is forced to the admission that here at least the factors responsible for them are not of a type particularly ascribable to the posterior position.

Fig. 9.—If complete pronation is possible, the occiput may be carried beyond the anterior midline, assuring maintenance of the correction for application of forceps.

In considering the deaths, one was due to a precipitate delivery in the absence of the physician, with aspiration of amniotic fluid; another was due to a tetanic uterus and shock following the administration of solution of posterior pituitary in the home; the final one

Fig. 10.—The occiput has been rotated to the anterior position, with the head in the midpelvis; when the transverse diameter of the outlet is below 8 cm., the delivery is completed with the axis traction forceps.

was due to a short cord twice around the baby's neck with resultant asphyxiation.

One baby showed forceps marks with bruising and trauma to the head greater than is ordinarily encountered with the axis traction forceps. Two babies had symptoms of cerebral hemorrhage, which was proved by bloody spinal tap. Two had cerebral hemorrhage

diagnosed by symptoms which were not supported by spinal tap, or the tap was not performed. Nine babies required artificial resuscitation more than the ordinary amount, and one of these was definitely on the verge of strangulation owing to the cord.

There were fifty-six male infants and fifty female infants. The fetal mortality was 2.7 per cent. The maternal mortality was 0.

TREATMENT

Certainly no report of this nature would be complete without some statement concerning the type of delivery used in this series. This is summarized in table 10.

FOLLOW-UP

Inadequacies in our follow-up records are due to the number of cases being referred from outlying districts, to the incompleteness of old records and to the usual difficulties in getting patients to return a distance for postpartum examination. This six weeks follow-up is outlined in table 11.

CONCLUSION

1. The etiology of occipitoposterior positions is dependent on the presence of abnormally directed forces during labor. This in turn is most often caused by the presence of some pelvic disproportion—usually of the simple flat variety.

2. In treatment there are three cardinal principles: awaiting dilatation, awaiting engagement and awaiting rotation. The first two are fundamental in delivery from below, but the last, if not spontaneous in a reasonable time, should be accomplished manually for the welfare of both mother and baby.

3. From statistics on 106 consecutive cases of occipitoposterior positions the following facts seem most evident:

Parity and age are not factors in this complication.

A previous history of difficult labor is frequent but not decisive, since the size of the fetus is a variable.

Most of the patients in whom pelvic measurements were possible presented evidence of moderate shortening of the true conjugate. This was true also for the intertuberous measurement.

Long labor and increased loss of blood are frequent, although, when the baby is small, the reverse may be true.

The ill fit of the fetal head at the pelvic brim often leads to premature rupture of the membranes.

Maternal morbidity was somewhat higher in this group.

The fetal mortality was 2.7 per cent.

The maternal mortality was 0.

306 Masonic Temple.

Table 10.—*Type of Delivery*

Technic	Number of Cases
Low forceps only	1
Low forceps, episiotomy	14
Mid forceps, episiotomy	11
Manual rotation, spontaneous delivery	3
Manual rotation, mid forceps	5
Manual rotation, mid forceps, episiotomy	7
Manual rotation, mid axis-traction forceps, episiotomy	39
Spontaneous delivery	19
Spontaneous delivery with episiotomy	13
Version with episiotomy	1
Cesarean section (contracted pelvis)	2
Forceps rotation	1
Voorhees' bag, spontaneous	2
Voorhees' bag, version	1
Delivered posterior, spontaneous	7
Delivered posterior, outlet forceps	2

Table 11.—*Follow-Up Observations*

Pathologic Condition	Number of Cases
Bilateral slight laceration cervix	38
Bilateral deep laceration cervix	4
Erosion	36
Cystocele	11
Rectocele	1
Stellate laceration of the cervix	6
Retroversion	7
Cystitis	1
Prolapse	1
No follow-up	47

No abnormalities were recorded for the babies seen

CUTANEOUS MANIFESTATIONS OF VITAMIN A DEFICIENCY IN CHILDREN

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During the past eight months we have observed nine children, almost all of families on relief, attending the pediatric outpatient department, with cutaneous lesions of vitamin A deficiency similar to those described by Frazier and Hu [1] in Chinese soldiers, by Loewenthal [2] and by Nicholls [3] in prisoners in Africa and India respectively, and in various parts of the world by other observers.[4] In the United States Scheer and Keil [5] recorded two cases of scurvy in which these lesions also were present and Jeghers [6] described cutaneous manifestations in medical students that he had observed for impaired dark adaptation. Also Youmans and Corlette [7] reported a series of cases in which these cuta-

With the technical assistance of Dorothy Greenberg, B.A.
Dr. William Rosenson gave valuable cooperation in this study.
From the Pediatric Service of Dr. Bela Schick, the Mount Sinai Hospital.
The oleum percomorphum 50 per cent used in this investigation was supplied by Mead Johnson & Co., Evansville, Ind. Ampules for intramuscular injection, containing 25,000 international units of vitamin A and 800 units of vitamin D in 1 cc. of a vegetable oil, also employed in one case, were furnished by the Abbott Laboratories, North Chicago, Ill.

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neous lesions were present and Steffens, Bair and Sheard [8] experimentally produced this dermatosis in a healthy human subject.

CLINICAL MANIFESTATIONS

The dermal lesions of our children were symmetrical and located chiefly on the extremities. They were found particularly on the lower extremities on the anterior and lateral surfaces of the thighs and calves and in the patellar region, and less frequently and less markedly on the upper extremities on the lateral and posterior surfaces of the upper arm and in the olecranon region. Also the abdomen, buttocks, back, neck and face were at times involved. The lesions consisted particularly of horny papules formed by keratotic plugs projecting from hair follicles and frequently containing a broken off hair or a coiled unerupted hair. The diameter of the papules probably is directly proportional to the duration and severity of the deficiency and in some reported cases has equaled 0.5 cm. but in our cases rarely exceeded 0.2 cm. If the follicular keratoses are marked they may give the skin a rough grater-like feel, and this dermatosis when mild is often detected more easily by palpation than by inspection. If a large papule is picked out, a gaping hole is left. In the more severe cases the keratosis may also involve the interfollicular skin, which may be rough. Aside from this there is a suppression of the cutaneous secretions as evidenced by a marked dryness of the skin or xeroderma. There may be a moderate degree of pruritus, and there is a loss of hair in the affected areas. In the African and Asiatic races the papules may be pigmented [9] and in some regions the skin may be generally darker than normal. Negro patients say they "ash" because black skins particularly may show a whitish frosted surface, though this is usually concealed by oiling. A dryness and scaliness of the scalp occur in some cases, and the lesions, when present on the face, slightly resemble acne. The expression "goose-skin" has been applied, but the term phrynoderma, meaning toad-skin, introduced by Nicholls [3] and later used by others for this cutaneous disorder, is most descriptive.

The familial occurrence of this dermatosis in our series is interesting, but we are as yet uncertain as to its proper interpretation. In one family there were two sisters with these skin lesions, while the parents and three other siblings had normal skins although the mother had a borderline photometric test for vitamin A deficiency. In another family, containing our only patients not on relief, the mother and two daughters had had this dermatosis since early childhood, and the mother, who has symptoms of night blindness, and also her two daughters, exhibited by test markedly impaired dark adaptation, while the father, the only other member, has a normal skin. Of course the most obvious explanation for multiple cases in a family is the consumption by its various members of the same deficient diet, and the occurrence of this disorder in only some of the members might be due to differences in the food actually consumed by them because of individual tastes and preferences. However, some hereditary disturbance in vitamin A metabolism, interfering with the utilization of vitamin A or producing an increased minimal requirement for this substance, may be also considered.

PHOTOMETRIC STUDIES

There have been few reports of photometric tests made in individuals with the cutaneous manifestations of vitamin A deficiency. Youmans and Corlette [7] reported that studies with a visual photometer in some of their cases demonstrated an occasional mild hemeralopia and concluded that in some instances such cutaneous lesions may be the first clinical evidence of vitamin A deficiency, appearing before any eye symptom except a mild hemeralopia detectable only by a photometer. The single other report of which we are cognizant is that of Frazier and Li,[10] who, using a Birch-Hirschfeld instrument, arrived at the opinion that conclusions drawn from photometric testing of visual acuity are likely to be fallacious.

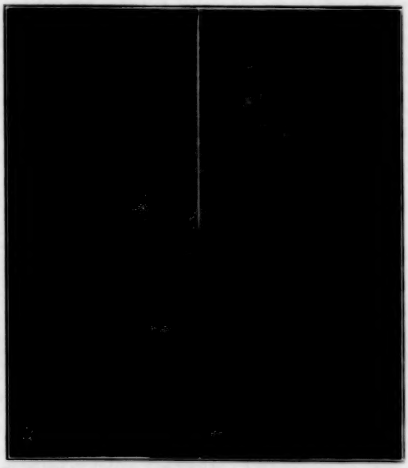

Fig. 1 (case 6).—*A*, arm before treatment, demonstrating keratotic plugs projecting from hair follicles and loss of hair. *B*, arm after prolonged administration of vitamin A showing normal skin and regrowth of hair. This is not a hypertrichosis.

Biophotometer studies were made in all our cases. We are aware of the different criticisms of the biophotometer made by various authors.[11] Jeans, Blanchard and Zentmire,[12] in their original paper on this instrument, pointed out many of the sources of experimental error and the methods for minimizing them. Only recently Booher and Williams,[13] testing adults, concluded that the biophotometer may be adequate for detecting marked dysadaptation. Furthermore the series of biophotometric curves obtained by Jeghers [6] during the production and cure of experimental human

8. Steffens, L. F.; Bair, H. L., and Sheard, Charles: Photometric Measurements on Visual Adaptation in Normal Adults on Diets Deficient in Vitamin A, Proc. Staff Meet., Mayo Clin. **14**: 698 (Nov.) 1939.

9. Mu, J. W.; Frazier, C. N., and Pillat, A.: Melanin Pigment of the Skin and Conjunctiva in Avitaminosis A in Man, Chinese J. Physiol. **11**: 247 (March) 1937.

10. Frazier, C. N., and Li, H. C.: Vitamin *A* Deficiency in Man: Resolution of Cutaneous Lesions Following Parenteral Administration of Carotene, Chinese M. J. **54**: 301 (Oct.) 1938.

11. Snelling, C. E.: The Biophotometer as a Test for Vitamin A Deficiency, J. Pediat. **13**: 506 (Oct.) 1938. Palmer and Blumberg,[11] Palmer,[11] Jung,[11] Isaacs, Jung and Ivy.[11]

12. Jeans, P. C.; Blanchard, Evelyn, and Zentmire, Zelma: Dark Adaptation and Vitamin A: A New Photometric Technic, J. A. M. A. **108**: 451 (Feb. 6) 1937.

13. Booher, Lela E., and Williams, D. E.: A Study of the Biophotometer as a Means of Measuring the Vitamin A Status of Human Adults, J. Nutrition **16**: 343 (Oct.) 1938.

avitaminosis A definitely demonstrate that, properly employed, this instrument can detect the presence and course of impaired dark adaptation due to vitamin A deficiency.

In none of our children were there any eye symptoms, but in every case the readings of the biophotometer have been definitely within the subnormal zone, indicating vitamin A deficiency. This test with the biophotometer was repeated several times before starting therapy both for confirmation as to existing deficiency and to eliminate the factor of training, reported by Palmer and Blumberg,[14] and also the factor of "centripetal drift," mentioned by Jung,[15] in any subsequent improvement of the retina. As additional corroboration in some of our cases we performed what we have termed a therapeutic test, based on an immediate retinal response. On the day on which treatment was begun in these cases an additional preliminary biophotometric test was made and then 200,000 international units of vitamin A was administered by mouth. Subsequent tests made one and two hours later indicated in some cases improvement in the biophotometric reading by a rise from the deficient to the borderline or of even normal individuals to a single dose of 2,000,000 units of vitamin A as reported by Getz, Hildebrand and Finn.[22] However, in some of our cases the immediate response to the dosage employed was disappointing, and betterment in visual tests was attained only after prolonged and intensive therapy. In such instances there was usually a rough parallelism between the improvement of the photometric tests and the progress of the skin, and the biophotometer was then of considerable value in gaging the dosage of vitamin A required.

In one of our cases we are discarding the evidence of the photometer because, although this child repeatedly gave readings that were in the deficient zone, the results of the tests were too erratic to be accepted as reliable. However, this child was typical in all other ways, such as clinical picture and response of the skin to treatment.

TREATMENT AND COURSE

The last three children in our series have so far had less treatment than the others and have shown a marked though not yet a maximal improvement of the skin. The other children have attained a nearly complete

Summary of Cases Showing Cutaneous Manifestations of Vitamin A Deficiency

Case	Initials	Age, Years	Sex	Race	Vitamin A Diet,† Units	Skin Lesions: Severity: Duration, Years	Skin Lesions: Severity: Before Treatment	Skin Lesions: Severity: After Treatment	Visual Photometric Test,* Millifoot Candles of Light: Before Course of Treatment	Visual Photometric Test,* Millifoot Candles of Light: 2 Hours After Test Dose	Visual Photometric Test,* Millifoot Candles of Light: After Course of Treatment	Comment
1	I. S.	11	♀	W	1,500	2	+++	0	1.95	....	0.29, 0.47	
2	R. S.	7	♀	W	1,700	1	++	0	1.4, 2.4	0.76	0.69	Sister of I. S.
3	V. F.	10	♀	Ir	4,000	2	++	0	1.6	0.69	0.45, 0.69	
4	G. G.	13	♀	W	1,400	2	+	0	0.9, 1.3	0.84	0.65, 0.58	
5	L. D.	8	♀	W	1,500	2	+	0	1.9	....	.....	Uncooperative
6	A. L.	8	♂	W	2,500	4	+++	0	1.47, 1.27	....	0.69, 0.47	Visual tests unreliable
7	E. H.	10	♀	W	5,000	9?	++	±	2.16	....	0.92	
8	E. A.	10	♀	W	2,000	7	++	-	1.5, 2.4	1.9	0.92	
9	C. H.	13	♀	W	5,000	12?	++	±	3.8	....	0.77	Sister of E. H.

* Photometric test after exposure to bright light. Normal is below 0.7, borderline is from 0.7 to 1.0, deficient is above 1.0.
† Vitamin A content of diet was estimated with Jeghers' assumed average values

normal zone. Such an immediate response of the retina has been obtained also by Edmund and Clemmesen,[16] Friderichsen and Edmund,[17] Mutch and Griffith,[18] Jeghers,[8] Wald, Jeghers and Arminio[19] and Lewis and Haig,[20] though not by Hecht and Mandelbaum,[21] and can be elicited only if an adequately large dose of vitamin A is administered. When the preliminary series of tests shows that the deficiency is very marked or when the patient is an adult or nearly adult in size, a larger test dose such as 500,000 units should be used. In this connection we refer to the immediate response

cutaneous recovery following a daily dose of from 100,000 to 300,000 international units of vitamin A in the form of oleum percomorphum, with no local treatment, no change in diet and with the children still in their home environment. Dosage of at least this magnitude not only may be required for visual improvement, as reported by Getz, Hildebrand and Finn,[22] but in most of our cases has been necessary also for cutaneous recovery. We hoped with such doses also to hasten the response of the skin, but nevertheless the cutaneous improvement, as reported by all authors[23] in this field, has been slow, requiring from two to four months of treatment. However, in the more severe case, in which the skin is exceedingly dry and lusterless with rough follicular keratoses, we, like Frazier and Hu,[1] have observed within two weeks renewed activity of the cutaneous glands manifested by perceptible moisture and oiliness, the appearance of a gloss and increased smoothness. The subsequent improvement noted, which requires weeks, is the gradual extrusion and desquamation of the follicular keratoses as minute ricelike bodies, which at first are partly adherent, giving the skin a shaggy appearance. Ultimately with adequate vitamin A therapy and sufficient time there is a regeneration

14. Palmer, C. E., and Blumberg, Harold: The Use of a Dark Adaptation Technic (Biophotometer) in the Measurement of Vitamin A Deficiency in Children, Pub. Health Rep. **52**: 1403 (Oct. 8) 1937. Palmer, C. E.: The Dark Adaptation Test for Vitamin A Deficiency, Am. J. Pub. Health **28**: 309 (March) 1938.

15. Jung, F. T.: Centripetal Drift: A Fallacy in the Evaluation of Therapeutic Results, Science **87**: 461 (May 20) 1938. Isaacs, B. L.; Jung, F. T., and Ivy, A. C.: Vitamin A Deficiency and Dark Adaptation, J. A. M. A. **111**: 777 (Aug. 27) 1938.

16. Edmund, C., and Clemmesen, S.: On Deficiency of A Vitamin and Visual Dysaptation, London, Oxford University Press, 1936, 1937.

17. Friderichsen, C., and Edmund, C.: Studies of Hypovitaminosis A: II. A New Method for Testing the Resorption of Vitamin A from Medicaments, Am. J. Dis. Child. **53**: 89 (Jan.) 1937; III. Clinical Experiments in the Vitamin A Balance in Children After Various Diets, ibid. **53**: 1179 (May) 1937.

18. Mutch, J. R., and Griffith, H. D.: A Study of Diet in Relation to Health: Dark Adaptation as an Index of Adequate Vitamin A Intake, Brit. M. J. **2**: 565 (Sept. 18) 1937.

19. Wald, George; Jeghers, Harold, and Arminio, Joseph: An Experiment in Human Dietary Night Blindness, Am. J. Physiol. **123**: 732 (Sept.) 1938.

20. Lewis, J. M., and Haig, Charles: Vitamin A Requirements in Infancy as Determined by Dark Adaptation, J. Pediat. **15**: 812 (Dec.) 1939.

21. Hecht, Selig, and Mandelbaum, Joseph: Vitamin A and Dark Adaptation, J. A. M. A. **112**: 1910 (May 13) 1939.

22. Getz, H. R.; Hildebrand, J. B., and Finn, Milton: Vitamin A Deficiency in Normal and Tuberculous Persons, J. A. M. A. **112**: 1308 (April 8) 1939.

23. Youmans, J. B.: Newer Clinical Aspects of Vitamin Deficiency Diseases: Vitamin A Deficiency, Am. J. Trop. Med. **19**: 229 (May) 1939. Also references 1, 2, 3 and 4.

of normal follicles and interfollicular epidermis [24] and a regrowth of hair. Even after this has been achieved we have continued vitamin A therapy, because we have found that relapse of visual dysadaptation and cutaneous manifestations may occur after treatment is diminished or stopped.

There is some tendency to seasonal amelioration during warmer weather, which may be due in part to an improved diet and the higher vitamin A content of important foods during the summer, reported by various investigators.[25] Seasonal factors favored our results, but in our cases of more than one year's duration the parents felt that the improvement this year far exceeded that of previous summers when no specific therapy had been administered. Furthermore in three cases, equivalent to an untreated control group, treatment was not started until August, when, despite the hot weather and in marked contrast to the treated children, the skin of each of these three children was still strikingly abnormal and the dark adaptation still markedly impaired. Also cutaneous improvement, subsequently produced by vitamin A therapy of these three children, is progressing satisfactorily in spite of the present cold weather. In connection with the seasonal factor, the data of Sweet and K'ang [26] on the month of onset of symptoms of vitamin A deficiency in 177 cases in China showed a marked peak in January, February and March, which was attributed to the deficient winter diet, and another peak in July attributed to dysentery, in which the diarrhea prevents absorption of the vitamin.

Fig. 2 (case 7).—Arm illustrating keratoses of the hair follicles typical of vitamin A deficiency.

OCCURRENCE IN CHILDHOOD

Frazier and Hu [1] among 207 cases of this dermatosis found only two children, aged 4 and 5 years respectively, with the characteristic follicular papules and concluded that the lesions usually occur in sexually mature persons between 16 and 30 years of age and not among infants, and that in infancy and childhood vitamin A deficiency may produce a simple xerosis of the skin. Although widely quoted, this conclusion requires revision. Loewenthal [2] in Africa, while examining 1,112 individuals of whom 1,000 were school children, found that over 80 per cent had a dry skin, which he believes is the earliest cutaneous symptom of vitamin A deficiency, and 277 had the follicular lesions. Aykroyd and Rajagopal [27] in India, in examining 1,918 school children between the ages of 6 and 17 years, found 129 with these follicular papules and the number affected was higher in the "poor" schools than in the "good" schools. Calculations made from data of Aykroyd and Krishnan [28] show that the occurrence of this condition in hostels or boarding homes for school children was about 14 per cent among 719 boys and about 12 per cent among 955 girls, and the incidence varied between 0 and 53 per cent in eleven different hostels containing boys and between 0 and 46 per cent in thirteen hostels for girls. Nicholls [3] examined 4,380 school children in India and found 1,175, or 26.8 per cent, with these cutaneous lesions, and the percentage affected varied from 0 and 2.8 in two of the better schools to 83 in a charity school for destitute children where the diet was very deficient. In a subsequent report on an additional 678 children there were 216 with this dermatosis, and Nicholls recommended an inspection of the arms of school children for this condition as one test of the children's nutritional status. We have not yet seen this dermatosis in infancy or very early childhood, but Nicholls states that "Advanced cases in which there are no signs of eye lesions are fairly common in young indigent children after 6 months of age, that is from the time they are weaned." Radhakrishna Rao,[29] also in India, states that he has observed cases of this dermatosis in children's boarding and day schools and reports in detail the cases of a boy aged 9 years and a girl aged 6 years. In a later paper Radhakrishna Rao states that the condition appeared to be as common in children of both sexes as in young adults and his youngest patient was 2½ years of age. Goodwin [30] in England reported a case in a 10 year old boy and also stated that on searching in the pediatric outpatient department he found several other milder cases, which was confirmed by Mackay.[31] As a consequence of these reports and as a result of our experience, we believe that, if the possibility is kept in mind, cases presenting the typical follicular lesions of the skin characteristic of vitamin A deficiency will be found not infrequently among underprivileged school children.

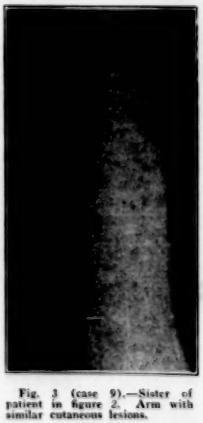

Fig. 3 (case 9).—Sister of patient in figure 2. Arm with similar cutaneous lesions.

ETIOLOGY

The microscopic picture of these cutaneous lesions, reported by Frazier and Hu [1] and by Radhakrishna Rao [29] in detail, reveals a pathologic process so typical of vitamin A deficiency that it furnishes strong proof of the cause of the disorder. Briefly, cornified cells, forming a concentric lamellated mass and frequently

24. Wolbach, S. B., and Howe, P. R.: Epithelial Repair in Recovery from Vitamin A Deficiency, J. Exper. Med. **57**: 511 (March) 1933.
25. Baumann, C. A.; Steenbock, Harry; Beeson, W. M., and Rupel, I. W.: The Influence of Breed and Diet of Cows on the Carotene and Vitamin A Content of Butter, J. Biol. Chem. **105**: 167 (April) 1934. Wilkinson, H.: The Vitamin A and Vitamin D Contents of Butter: II. Seasonal Variation, Analyst **64**: 17 (Jan.) 1939. Booth, R. G.; Kon, S. K.; Dann, W. J., and Moore, Thomas: A Study of Seasonal Variation in Butter Fat, Biochem. J. **27**: 1189 (Nov. 4) 1933.
26. Sweet, L. K., and K'ang, N. J.: Clinical and Anatomic Study of Avitaminosis A Among the Chinese, Am. J. Dis. Child. **50**: 699 (Sept.) 1935.
27. Aykroyd, W. R., and Rajagopal, K.: The State of Nutrition of School Children in South India, Indian J. M. Res. **24**: 819 (Oct.) 1936.
28. Aykroyd, W. R., and Krishnan, B. G.: The State of Nutrition of School Children in South India: Part II. Diet and Deficiency Disease in Residential Hostels, Indian J. M. Res. **24**: 707 (Jan.) 1937.
29. Radhakrishna Rao, M. V.: "Phrynoderma": A Clinical and Histopathological Study, Indian J. M. Res. **24**: 727 (Jan.) 1937; Studies in Vitamin A Deficiency: Histopathology of the Skin in Human Keratomalacia, ibid. **25**: 39 (July) 1937; Treatment of Phrynoderma by Vitamin A Concentrate, Indian M. Gaz. **73**: 461 (Aug.) 1938.
30. Goodwin, G. P.: Cutaneous Manifestation of Vitamin A Deficiency, Brit. M. J. **2**: 113 (July 21) 1934.
31. Mackay, Helen M. M., in note to article by Goodwin.[30]

containing an atrophic coiled hair, plug the greatly distended upper portion of the hair follicle, and concurrently there is an atrophy of the associated sebaceous gland even to the point of disappearance. A moderate hyperkeratinization extends beyond the follicle over the general surface of the epidermis, and a keratinizing metaplasia, similar to that of the hair follicles though milder and detectable only by the microscope, affects the ducts of the sweat glands, which also atrophy. That identical cutaneous lesions have not been observed in experimental animals [32] does not afford a reason for doubting the etiology because it is established that the distribution in the various epithelial tissues of this pathologic process varies in different species,[22] and the susceptibility to cutaneous localization seems to be a characteristic of man. On the basis of pathology alone we can conclude that the changes in the skin are very comparable to those that occur in other epithelial tissues [33] in vitamin A deficiency and are therefore strong proof of the etiology of the process.

Fig. 4 (case 7).—Thigh showing keratotic plugs in hair follicles.

The high incidence of these cutaneous lesions of a uniform character in individuals with well established symptoms of vitamin A deficiency such as keratomalacia, xerophthalmia and night blindness constitutes one of the strongest proofs that the cause of this dermatosis is a lack of vitamin A. Loewenthal [2] among 1,000 prisoners diagnosed vitamin A deficiency in eighty-one, of whom seventy-one had night blindness, forty-five had xerophthalmia and seventy-four had this dermatosis. Frazier and Hu [1] found that the majority of their soldiers with keratomalacia had these cutaneous lesions and Nicholls [3] reported that all of twenty-one prisoners with keratomalacia had this type of cutaneous involvement. Conversely the individuals with this dermatosis show a high incidence of ocular manifestations of vitamin A deficiency, as indicated by nyctalopia, xerophthalmia and keratomalacia in the severe cases of Frazier and Hu, of Loewenthal and of Nicholls, and as evidenced by impaired dark adaptation by photometric test in the less marked cases reported by Youmans and Corlette [7] and by us. However, it is possible that in the earlier and milder stages these cutaneous lesions may at least in some cases be the first symptom of vitamin A deficiency and may antedate any impairment of dark adaptation, and even in more marked cases, if photometric tests are not available, these cutaneous manifestations may be the only evidence of vitamin A deficiency.

Dietary investigations, which show that almost all the individuals or groups of individuals reported with these cutaneous lesions have been on a diet deficient in vitamin A, furnishes additional proof of etiology. For example, Nicholls [9] in India reported a mental asylum where among 232 patients on the "Ceylon diet" there were about 44 per cent with this dermatosis, while among eighty-one patients in the same institution on a "European diet," differing only by an extra two eggs and 5 ounces of milk daily, there were about 2 per cent affected. Furthermore, the data in two papers of Nicholls concerning a total of 1,823 prisoners suggests that the presence of these cutaneous lesions varies directly with the degree of deficiency of the diet in vitamin A and with the length of time a given deficient diet is consumed. Also Steffens, Bair and Sheard,[8] of the Mayo Clinic, experimentally produced these cutaneous manifestations, appearing before significant changes in light thresholds but confirmed by biopsy, in a human subject maintained for 190 days on a diet adequate in other factors but furnishing daily only 100 to 300 international units of vitamin A; and after seventeen additional days with vitamin A therapy, these observers demonstrated by a second biopsy from the same subject a normal skin except for the keratotic plugs in the hair follicles. The occurrence of this dermatosis or impaired dark adaptation in some individuals on an apparently satisfactory diet is no disproof of the etiology of these symptoms. In such instances the deficiency may be due to increased or high minimum requirements or, to put it differently, may be due to various

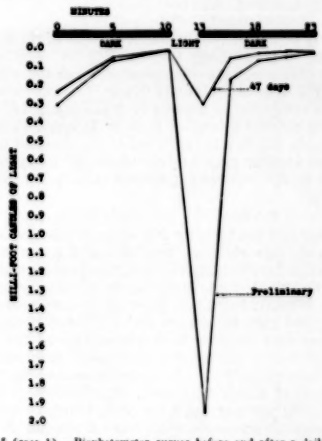

Fig. 5 (case 1).—Biophotometer curves before and after a daily dose of 100,000 international units of vitamin A for forty-seven days.

32. Beesey, O. A., and Wolbach, S. B.: Vitamin A: Physiology and Pathology, J. A. M. A. **110**: 2072 (June 18) 1938. Wolbach, S. B.: The Pathologic Changes Resulting from Vitamin Deficiency, ibid. **108**: 7 (Jan. 2) 1937. Wolbach, S. B., and Howe, P. R.: Tissue Changes Following Deprivation of Fat-Soluble A Vitamin, J. Exper. Med. **42**: 753 (Dec.) 1925; Vitamin A Deficiency in the Guinea Pig, Arch. Path. & Lab. Med. **5**: 239 (Feb.) 1928.

33. Wilson, J. R., and DuBois, R. O: Report of a Fatal Case of Keratomalacia in an Infant, with Postmortem Examination, Am. J. Dis. Child. **28**: 431 (Nov.) 1923. Blackfan, K. D., and Wolbach, S. B.: Vitamin A Deficiency in Infants, J. Pediat. **3**: 679 (Nov.) 1933. Goldblatt, H., and Benischek, M.: Vitamin A Deficiency and Metaplasia, J. Exper. Med. **46**: 699 (Nov.) 1927. Robertson, E. C.: Recent Work on the Tissue Changes in Vitamin A Deficiency, Am. J. M. Sc. **192**: 409 (Sept.) 1936.

disturbances, some [34] of which are already known, that may occur in the series of processes from ingestation of diet at one end through digestion, absorption, conversion, storage, transportation and so on to finally, at the other end, utilization of the vitamin A by the retina and other epithelial tissues. On the other hand, the diet may be so deficient that these cutaneous lesions may occur together with scurvy [35] or pellagra.[36] However, as Frazier and Hu [1] state, "If one bears in mind the present conception of the pathologic characteristics of the two deficiency diseases, it seems reasonable to assume that the epithelial changes occasionally found in association with scurvy are related to a lack of vitamin A rather than to a lack of vitamin C. This is equally true of other types of avitaminoses, such as pellagra, in which similar lesions of the skin have been observed."

The administration of vitamin A as a therapeutic test to patients with these cutaneous manifestations constitutes one of the most convincing proofs of the etiology and, according to every author, has resulted in complete or nearly complete cutaneous recovery. Loewenthal [2] for example gave his prisoners 1 ounce of cod liver oil daily and with no other change obtained in nine weeks a cure of night blindness in 100 per cent, of xerophthalmia in 100 per cent and of this dermatosis in 98.7 per cent. Of course the fish liver oils, which have usually been employed, contain both vitamin A and D, but enough is known of the effects of deficiency of these two vitamins to establish that vitamin A is the factor concerned in changes in epithelial tissues. Furthermore, Loewenthal has cured patients with a product containing vitamin A alone, and Frazier and Li [10] have reported a typical patient cured in fifty-one days while still on a deficient diet by daily intramuscular injections of from 1 to 2 mg. of carotene. Our patients were successfully treated while remaining in their own homes with no change in diet or in any other factor except the administration of oleum percomorphum.

ETIOLOGY OF KERATOSIS PILARIS (LICHEN PILARIS, ICTHYOSIS FOLLICULARIS)

Before the etiology of the cutaneous manifestations of vitamin A deficiency had been reported in 1931 by Frazier and Hu, an entity similar both clinically [37] and pathologically [38] had long been known to dermatologists [39] under the descriptive terms keratosis pilaris, lichen pilaris, lichen spinulosus and so on, and Nicholls [3] and Radhakrishna Rao [29] without expressing a definite opinion pose the question of the etiology of the latter conditions. Icthyosis follicularis is another synonym, and many of our cases have been

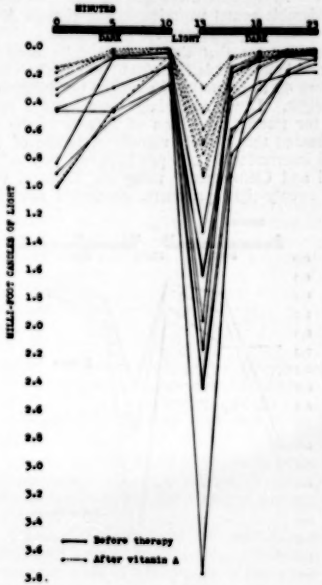

Fig. 6.—Biophotometer curves from eight children before and after prolonged treatment with vitamin A. Normal is below 0.7, borderline is from 0.7 to 1.0, deficient is above 1.0 after exposure to bright light.

diagnosed by others as "icthyosis." However, every case in the series investigated by us that might have been designated keratosis pilaris, icthyosis follicularis or the like proved by photometric test to be deficient in vitamin A and responded to vitamin A therapy with a nearly complete or a marked improvement of the skin. On this account and because of the indistinguishable clinical picture and the identical pathologic changes characteristic of vitamin A deficiency, we believe that keratosis pilaris, lichen pilaris, lichen spinulosus, icthyosis follicularis and other synonyms are merely descriptive terms for the cutaneous manifestations of a vitamin A deficiency.

HUMAN REQUIREMENTS FOR VITAMIN A

Before considering the probable incidence of vitamin A deficiency in America on the basis of the adequacy of the diets consumed by various groups of the popu-

34. Curtis, A. C., and Ballmer, R. S.: The Prevention of Carotene Absorption by Liquid Petrolatum, J. A. M. A. **113**: 1785 (Nov. 11) 1939. Van Eekelen, M., and Pannevis, W.: Absorption of Carotenoids from the Human Intestine, Nature **141**: 203 (Jan. 29) 1938. Heymann, Walter: Absorption of Carotene, Am. J. Dis. Child. **51**: 273 (Feb.) 1936. Breese, B. B., and McCord, A. B.: Vitamin A Absorption in Celiac Disease, J. Pediat. **15**: 183 (Aug.) 1939. Altschule, M. D.: Vitamin A Deficiency in Spite of Adequate Diet in Congenital Atresia of Bile Ducts and Jaundice, Arch. Path. **29**: 843 (Dec.) 1935. Ralli, Eliada P.; Pasmanik, A. C.; Brandaleone, Harold, and Davidson, Sidney: The Effect of the Daily Administration of Carotene on the Blood Carotene of Normal and Diabetic Individuals, J. A. M. A. **106**: 1975 (June 6) 1936. Patek, A. J., and Haig, Charles: The Occurrence of Abnormal Dark Adaptation and Its Relation to Vitamin A Metabolism in Patients with Cirrhosis of the Liver, J. Clin. Investigation **18**: 609 (Sept.) 1939. Bauman, C. A.; Rüsing, B. M., and Sternbock, Harry: The Absorption and Storage of Vitamin A in the Rat, J. Biol. Chem. **107**: 705 (Dec.) 1934. Wohl, M. G., and Feldman, J. B.: Vitamin A Deficiency in Disease of the Thyroid Gland, Endocrinology **24**: 389 (March) 1939. Anderson, D. H.: Cystic Fibrosis of the Pancreas and Its Relation to Celiac Disease, Am. J. Dis. Child. **56**: 344 (Aug.) 1938. Edmund, C., and Clemmesen, S.: On Parenteral A Vitamin Treatment of Dyantaion (Nyctalohemeralopia) in Some Pregnant Women, Acta med. Scandinav. **89**: 69, 1936.

35. Jessner, S.: Haut-Anomalien bei innern Krankheiten, Berlin, A. Hirschwald, 1893, p. 85. Nicolau, S.: Study of a Follicular and Perifollicular Eruption in Scurvy, Ann. de dermat. et syph. **7**: 399, 1918-1919. Wiltshire, H.: Hyperkeratosis of the Hair Follicles in Scurvy, Lancet **2**: 564 (Sept. 27) 1919. Aschoff, L., and Koch, W.: Skorbut, Jena, G. Fischer, 1919, p. 12. Theodorescou, S.: Sur un cas de dermatite papulo-kératosique scorbutique, Ann. de dermat. et syph. **9**: 581 (July) 1928. Scheer and Keil.[5]

36. Stannus, H. S.: Pellagra in Nyasland, Tr. Soc. Trop. Med. & Hyg. **5**: 112, 1911-1912.

37. Andrews, G. C.: Diseases of the Skin, ed. 2, Philadelphia, W. B. Saunders Company, 1938, p. 679. Ormsby, O. S.: Diseases of the Skin, ed. 5, Philadelphia, Lea & Febiger, 1937, p. 483.

38. Giovanni, S.: A Contribution to the Histological Study of Keratosis Pilaris, Lo sperimentale gior. med. **49**: 661 (Dec.) 1895; abstr. Brit. J. Dermat. **8**: 151 (April) 1896.

39. Brocq, L.: Notes pour servir a l'histoire de la kératose pilaire, Ann. de dermat. et syph. **1**: 25, **1**: 97, **1**: 222, 1890. Mibelli, V.: Die Aetiologie und die Varietäten der Keratosen, Monatsh. f. prak. Dermat. **24**: 345, **24**: 415, 1897. Duhring, L. A.: Diseases of the Skin, ed. 3, Philadelphia, J. B. Lippincott Company, 1886, p. 399. Crocker, H. R.: Diseases of the Skin, ed. 3, Philadelphia, P. Blakiston's Son & Co., 1905, p. 391.

lation, it is advisable to review the efforts of various investigators to establish definite minimal and optimal standards of human requirements for vitamin A. Unfortunately the estimates arrived at by different authors vary considerably, not only because of different technics in ascertaining such standards but also because of differences in the vitamin A value assigned to foods [40] by various investigators, and also because of considerable actual variation in the vitamin A content of different specimens of a given food.

Booher [41] states that the minimal daily need both in man and in animals is from 20 to 30 units of vitamin A or from 40 to 50 units of carotene per kilogram of body weight. Lewis and Haig [20] employed a special technic for testing the vision of infants in the dark and estimated that a daily vitamin A intake of from 18 to 25 international units per kilogram just sufficed. Edmund and Clemmesen,[18] using the Edmund visual test on twenty-eight prisoners, concluded that 1,370

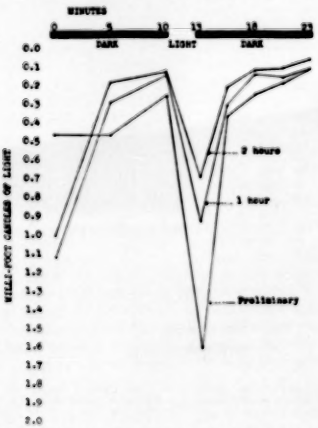

Fig. 7 (case 3).—Biophotometer curves before, one and two hours after an initial dose of 200,000 international units of vitamin A by mouth.

units per person daily exactly covered the minimal requirement. Jeghers [6] correlated the vitamin A content of the diet with dark adaptation and found that adults with normal dark adaptation consumed more than 4,000 international units of vitamin A while those with night blindness consumed less than this amount and that, the lower the vitamin A content of the diet, the worse the degree of the night blindness. The variance in these estimates may be partly due to differences in the vitamin A value assigned to foods, for Edmund and Clemmesen calculated the vitamin A content of a pint of winter milk with 3.7 per cent fat to be 150 international units, while Jeghers, using assumed average values in round numbers derived from a table of Eddy and Dalldorf,[42] calculated the vitamin A content of a pint of milk to be 800 international units. Jeans, Blanchard and Zentmire,[12] using the biophotometer, estimated that the needs of two 11 year old boys were covered by an intake by each of 3,000 units of vitamin A daily, though they did not claim this to be the boys' minimal requirement. Stiebling and Phipard [43] quote adaptometer studies of Booher, Callison and Hewston [44] indicating that the five adults investigated required from 25 to 55 (average 40) units of vitamin A or from 43 to 103 (average 70) units of carotene daily per kilogram of body weight. Stiebling and Phipard state that, in the ordinary American diet, carotene from plant food usually supplies from 60 to 80 per cent of the total vitamin A value, so that the average minimum would be from 58 to 64 units per kilogram, or 4,000 units daily for an adult. As this does not provide any reserves and does not allow for above average requirements, they suggest a 50 per cent margin of safety and estimate that an adult should take at least 6,000 units of vitamin A daily and that a child of school age should receive 5,400 units a day. Cowgill,[45] deducing the optimal supply from the vitamin A content of human breast milk, suggests that an infant should receive not less than 2,000 units a day and that school children should be given four times their calculated minimal requirements. Finally Booher [41] states that the Technical Committee of the League of Nations recommends a diet for growing children containing from 6,000 to 8,000 international units daily.

INCIDENCE OF VITAMIN A DEFICIENCY IN AMERICA

On the basis of a dietary survey made by the U. S. Department of Agriculture and U. S. Bureau of Labor Statistics covering 4,000 urban families of employed wage earners, Stiebling and Phipard [43] conclude that, "with present day choices, diets are often fairly low in vitamin A value even when expenditures for food are relatively high" and that only "about one third of the white families included in the study obtained diets high enough in average vitamin A value to insure good visual adaptation in semidarkness." The per capita weekly expenditure for food allotted in New York City to families on relief falls within the range of the low economic group of Stiebling and Phipard, which spends for food from $1.25 to $1.87 a person a week, and in this group an adult consumed an average of 2,200 international units of vitamin A daily, but almost 70 per cent of the diets furnished less than 2,000 units. We believe that, in such low economic strata, moderate deficiency of vitamin A sufficient to produce cutaneous manifestations may not infrequently occur in individual children because of inefficient purchasing and diversion of funds to amusements, clothes and other items, or because of caprice in choice of foods and seasonal variations in diet or in the vitamin A content of foods. Also one of the more important causes is an increased or a higher than average minimal requirement due to individual variation in the need for vitamin A, and we believe that this may explain the occurrence of mild vitamin A deficiency in individuals who are even on a diet ordinarily adequate. Jeghers [46] states that "the minimal

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41. Booher, Lela E.: Vitamin A Requirements and Practical Recommendations for Vitamin A Intake, J. A. M. A. **110**: 1920 (June 4) 1938.

42. Eddy, W. H., and Dalldorf, Gilbert: The Avitaminoses, Baltimore, Williams & Wilkins Company, 1937.

43. Stiebling, H. K., and Phipard, E. F.: Diets of Employed Wage Earners and Clerical Workers in Cities, U. S. Dept. Agric. Circular 507, January 1939.

44. Booher, Lela E.; Callison, Elizabeth C., and Hewston, Elizabeth M.: An Experimental Determination of the Minimum Vitamin A Requirements of Normal Adults, J. Nutrition **17**: 317 (April) 1939.

45. Cowgill, G. R.: The Vitamin Requirements of Man, J. Am. Dietet. A. **13**: 196 (Sept.) 1937.

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requirements may be increased by fever, rapid growth, infection, elevated basal metabolic rate, pregnancy, lack of bile or pancreatic secretion, changes in the gastrointestinal mucosa, disturbances of motility of the gastrointestinal tract and hepatic disease."

The occurrence of cases of vitamin A deficiency in America has been predicted not only by dietary surveys but also by the investigations of various authors, who report a considerable incidence both in adults and in children of impaired dark adaptation. To illustrate we will cite only Jeghers [6] in Boston, who examined 162 medical students and found that 35 per cent gave photometric evidence of vitamin A deficiency and that 12 per cent showed clinical symptoms. In the latter group were fifteen individuals with dry skin, including two cases of hyperkeratosis. At the time of the report all but four had regained with treatment a normal skin texture. Similar impairment of dark adaptation by photometric test has been reported by other investigators,[47] although the actual percentage abnormal has varied with different authors and with various groups examined and, of course, partly depends on the location of the boundaries accepted as demarcating normal from borderline and borderline from deficient. Furthermore, although refinements in the technic of these tests may influence the percentage of persons found abnormal, all results, including those of Hecht and Mandelbaum [21] with the adaptometer, show that in any group there is a marked spread between those individuals with the greatest and those with the least powers of dark adaptation. That the latter are deficient in vitamin A is probable because their capacity for dark adaptation is comparable to that of the individuals with experimental human vitamin A deficiency observed by Jeghers,[6] Booher, Callison and Hewston,[44] and by Hecht and Mandelbaum.[21] Moreover, contrary conclusions should not be drawn from a lack of response to oral administration of moderate doses of vitamin A. In our experience and in agreement with Getz, Hildebrand and Finn,[22] prolonged and intensive treatment with large oral doses may be required to improve the powers of dark adaptation, and, according to Edmund and Clemmesen [24] and the others cited by them, oral administration of vitamin A may be ineffective in cases which may respond satisfactorily to intramuscular injections. We believe, therefore, that a not inconsiderable though possibly a not yet precisely determined percentage of the population shows evidence of a mild vitamin A deficiency by impaired dark adaptation on photometric test.

The conclusions drawn from dietary surveys and from studies of impaired dark adaptation are further supported by the results obtained by Moore [48] in England, Wolff [49] in the Netherlands and other investigators [50] elsewhere from assaying human livers obtained at necropsy for their stores of vitamin A. Here too, even in supposedly normal individuals meeting an accidental death, has been found a very wide spread from low values per gram of fresh liver of zero and 10 international units of vitamin A to high values of about 1,500 units, and the medians of 130 units in children of from 4 months to 14 years and of 220 units in persons from 15 to 59 years, have been taken by Moore as "typical" values of healthy individuals. Since Moore and others have established that a very large proportion, possibly 95 per cent, of all vitamin A of man and animals is stored in the liver, apparently a portion of the population has practically no reserves of this vitamin. Furthermore, the fact that the apparently healthy individuals in the lowest range of vitamin A content had an amount in their livers similar quantitatively to that reported by various investigators [51] in the livers of experimental vitamin A deficient animals showing symptoms of night blindness corroborates, we believe, the evidence of dietary surveys and dark adaptation studies, which likewise suggest that at least the milder degrees of vitamin A deficiency are not rare.

SUMMARY

1. Nine children, almost all of families on relief, had the cutaneous manifestations of vitamin A deficiency.

2. Our diagnosis has been confirmed by photometric studies.

3. Improvement in visual tests has in some children been immediate with single adequately large doses of vitamin A but in others has required prolonged intensive therapy.

4. Maximal improvement of the skin has been attained with a daily dose of from 100,000 to 300,000 international units of vitamin A in from two to four months.

5. The typical follicular papules described by Frazier and Hu and others are not an infrequent cutaneous manifestation of vitamin A deficiency during childhood.

6. So far our investigations indicate that keratosis pilaris, lichen pilaris, lichen spinulosus, ichthyosis follicularis and other synonyms are merely descriptive terms for the cutaneous manifestations of vitamin A deficiency.

247 West Ninety-Ninth Street—7 West Ninety-Sixth Street.

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48. Moore, Thomas: Vitamin A Reserves of the Human Liver in Health and Disease, Lancet **2**: 669 (Sept. 24) 1932; The Vitamin A Reserve of the Adult Human Being in Health and Disease, Biochem. J. **31**: 155 (Jan.) 1937. Ellison, J. B., and Moore, Thomas: The Vitamin A Reserves of the Human Infant and Child in Health and Disease, Biochem. J. **31**: 165 (Jan.) 1937.

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THE DIAGNOSIS AND SURGICAL MANAGEMENT OF STRANGULATED FEMORAL HERNIA

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A high mortality attends strangulated femoral hernia. In 1900 Gibson [1] found it to be 47 per cent. Thirty years later Counseller and Cox,[2] of the Mayo Clinic, stated that there had been only a slight reduction of the death rate despite the advances which had been made in the field of intestinal obstruction. In 1932 McIver [3] noted a mortality of 18 per cent when operation was performed early and of 50 per cent when operation was delayed. Homans,[4] Christopher [5] and Watson [6] all emphasize that the mortality is higher in strangulated femoral than in strangulated inguinal hernia. The present communication considers the causes of the high mortality and outlines measures of value in the management of this condition.

Three principal factors contribute to the high mortality of strangulated femoral hernia: delayed treatment, the old age of many of the patients, and improper surgical management. The importance of delayed treatment has been emphasized by Gibson,[1] Alexander,[7] McIver [3] and others. It is evident in the figures of the Peter Bent Brigham Hospital (table 1). An important cause of delayed treatment is erroneous diagnosis. During a twenty year period (January 1917 to January 1937) the correct diagnosis was established prior to the admission of the patient to this hospital in only twenty-nine of fifty-one consecutive cases of strangulated femoral hernia. Moreover, because of errors in diagnosis, surgical intervention was delayed for periods of from one to eight days in 70 per cent of the fatal cases.

TABLE 1.—*Mortality in Femoral Hernia in Relation to Vascular Change in the Intestine*

Group	Number of Operations	Deaths	Mortality, per Cent
1. Uncomplicated by obstruction or gangrene of the intestine	160	0	0
2. Complicated by intestinal obstruction; bowel viable	21	0	0
3. Complicated by intestinal obstruction and gangrene	20	10	50

Group 1 includes cases in which only omentum was found strangulated or in which the bowel was simple incarcerated, as well as all elective operations for femoral hernia. In group 2 intestinal obstruction was present, and there were varying degrees of impairment of the vascular system, but gangrene had not developed. Group 3 includes the cases in which gangrene had developed by the time operation was performed.

The circumstances which led to erroneous diagnosis merit emphasis. In many instances both patient and physician were unaware of the presence of a hernia. In others a hernia of long standing was dismissed as a possible cause of the symptoms because there was no local tenderness or pain in the groin. The proportion of cases in which no complaint of pain or tenderness in the hernia was recorded is remarkable. Five patients complained only of intermittent, dull, aching pain in the epigastrium. Twenty-two patients noted abdominal pain more or less generalized but without radiation to or localization in the groin. Only twenty-four, less than half of the entire group, complained of pain in the hernia. Exquisite tenderness could be elicited by palpation of the hernia in only nineteen cases. In ten the hernia was slightly tender and in twenty-two it was not tender. A third factor which led to erroneous diagnosis was that the usual signs and symptoms of intestinal obstruction developed slowly in approximately one third of the cases either because the lower ileum was obstructed or because only a part of the circumference of the bowel was caught in the constricting ring (Richter's hernia). These various factors led to such diagnoses as "gastrointestinal upset" or "possible large bowel malignancy." The following case is illustrative:

REPORT OF CASE

An unmarried woman aged 78 entered this hospital complaining of abdominal pain and vomiting. Except for constipation, she had enjoyed excellent health until two months prior to admission. During this period she noticed increasing constipation and recurring attacks of mild midabdominal cramps. For three days before admission the pains were more severe and were accompanied by anorexia, nausea and vomiting. For seven days there had been no normal bowel movements, but daily enemas produced small amounts of fecal material. The patient had lost 10 pounds (4,536 Gm.) during the month prior to admission.

The patient, who was thin, was in no great distress. The heart was enlarged to percussion and a loud systolic murmur could be heard over the precordium. The abdomen was moderately distended and tympanitic but not tender. No abnormal masses were palpable. A large, hard nodular mass could be felt protruding into the anterior wall of the rectum. Pelvic examination was impossible because of a contracted senile introitus.

The admitting diagnosis was intestinal obstruction due to cancer of the rectum. This impression was confirmed by a junior member of the surgical staff. However, a senior member of the surgical staff noted that the rectal mass seemed to be covered by intact mucosa and that there was no blood on the examining finger. Also a small nodule was noted in the right groin. Although slightly tender to palpation, it had not been noticed before either by the patient or by previous examiners. A tentative diagnosis of strangulated femoral hernia was made. Further confirmation of this impression was obtained by a plain roentgenogram of the abdomen, which showed dilated loops of small intestine and a calcified mass, probably a fibroid, in the pelvis.

The patient was operated on through an inguinal incision, and a loop of small intestine was found strangulated in a small right femoral hernia. After release of the constricting ring the intestine gradually regained its normal color, and a resection was not thought necessary. The convalescence was uneventful.

As this report demonstrates, the diagnosis of a strangulated femoral hernia can usually be established clinically if it is given due consideration. Error arises from not thinking of the condition because of the vague character of the abdominal pain or because of the absence of local pain or tenderness in the groin. This is demonstrated by the fact that, although in twenty-two instances the condition was incorrectly diagnosed prior to the admission of the patient to the hospital, it was overlooked on only four occasions by senior members of the surgical staff. It should be axiomatic, therefore, that whenever a patient complains of vague gastrointestinal symptoms, particularly abdominal pain and vomiting, the possibility of a strangulated femoral

From the Surgical Service of the Peter Bent Brigham Hospital and the Department of Surgery, Harvard Medical School.

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hernia must be considered. Attention to this simple rule will prevent many errors. Moreover, the fact that a hernia is not tender to palpation does not exclude it as the cause of the symptoms. Often a physical examination in experienced hands is sufficient to establish the diagnosis, but if doubt exists a plain roentgenogram of the abdomen may be helpful by revealing evidence of obstruction of the small intestine. Occasionally the differential diagnosis between a strangulated femoral hernia and a tumor of the large bowel may be so difficult as to warrant an x-ray examination of the colon by means of a barium sulfate enema. This was found necessary in three of the fifty-one cases in this series.

TABLE 2.—*Mortality in Strangulated Femoral Hernia in Relation to Age of Patients and Vascular Change in the Bowel*

Age of Patient	Condition	No. of Cases	Deaths	Per Cent
40-70	Intestinal obstruction and gangrene...	11	4	36.3
70-90	Intestinal obstruction and gangrene...	9	6	66⅔
40-70	Intestinal obstruction; bowel viable...	21	0	0
70-90	Intestinal obstruction; bowel viable...	10	0	0

The old age of many of the patients has been cited as an important factor in the high mortality.[2] The present study indicates that age assumes its chief importance when treatment has been delayed and gangrene of the bowel has developed (table 2). Under these circumstances the mortality in patients over 70 years of age is much higher than in the younger age groups. However, early diagnosis and proper surgical management can do much to offset the influence of age. In this series there were nineteen patients over 70 years of age. As shown in table 2, the mortality was 66⅔ per cent in nine cases in which gangrene of the bowel had developed. It is significant, therefore, that there were no deaths among ten patients, five of whom were over 80 years of age, when operation was performed before the development of vascular changes of sufficient degree to necessitate resection of the bowel. In other words, if the diagnosis is established early the operation for strangulated hernia can be performed with a remarkably low mortality even in the aged.

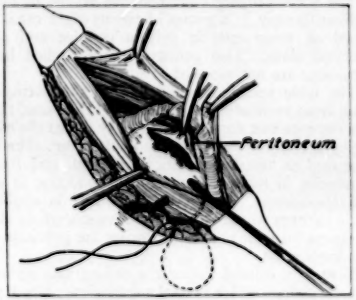

Fig. 1.—Inguinal operation for strangulated femoral hernia. The peritoneal cavity has been opened and a silk thread is being passed through the femoral canal to be used as a whipsaw to divide the free edge of Gimbernat's ligament.[9]

SURGICAL MANAGEMENT

Certain aspects of the surgical management of these cases merit consideration. Inadequate preparation, prolonged inhalation anesthesia, poor exposure and misdirected attempts to preserve the integrity of the inguinal ligament contribute to the high mortality. Operation should not be performed until distention has been reduced and lost fluids have been replaced. A local injection of the peripheral nerves with procaine hydrochloride or metycaine provides the most satisfactory anesthesia. Extensive local infiltration of the field should be avoided because of the danger of spreading infection if the sac has become gangrenous. The inguinal transperitoneal approach should always be used. The inadequacy of a femoral incision undoubtedly was a contributory factor in the death of one patient in this series. The inguinal approach gives the best exposure of the sac and its contents; an abnormal sac or obturator artery is more easily recognized through this incision, and if resection of the intestine is necessary it can be performed with an adequate exposure and without traction on the mesentery.

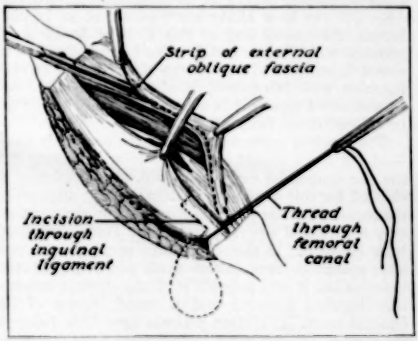

Fig. 2.—Inguinal operation for strangulated femoral hernia. There should be no hesitation in dividing the inguinal ligament, but an incision through it should be staggered, as shown. This permits the fascial edges to be reunited, and a strip of fascia taken from the upper edge of the external oblique serves as an excellent reinforcement.

In experienced hands the inguinal operation is neither difficult nor time consuming. It is not shocking and is well tolerated even by the aged. The technical details of this procedure are well known,[8] but one or two points deserve consideration. It is of great importance to open the peritoneal cavity (fig. 1) before handling the sac because a partial enterocele (Richter's hernia) may be reduced during manipulation and a necrotic segment of bowel be overlooked. If bowel is found in the hernia an attempt should be made to free the sac by gentle traction and by incising Gimbernat's ligament. If Gimbernat's ligament is difficult to expose, Ware's[9] maneuver of passing a silk thread on a blunt needle through the femoral canal and then gently whipsawing the thread against the free edge of the ligament may be worthy of trial (fig. 1). If this is not sufficient to free the hernia—and in my experience it usually is not—the inguinal ligament must be partially or completely divided. Persistent attempts to free a tense gangrenous sac by traction needlessly prolong the operation and tend to spread infection by excessive manipulation, if

8. Moschcowitz, A. V.: Femoral Hernia: A New Operation for the Radical Cure, New York State J. Med. **7**: 396, 1907. Seelig, M. G., and Tuholske, L. H.: The Inguinal Route Operation for Femoral Hernia, with Supplementary Note on Cooper's Ligament, Surg., Gynec. & Obst. **18**: 55, 1914.

9. Ware, M. W.: Hernia, Surg., Gynec. & Obst. **27**: 530 (Nov.) 1918.

not rupture of the sac. However, if the inguinal ligament is cut straight across, the fascial edges may retract so far that it is difficult or impossible to reunite them and the key to a successful repair of the hernia is lost. The incision through the ligament, therefore, should be staggered or diagonal (fig. 2). After the hernial sac has been dealt with the ligament can then be reunited. A flap of fascia taken from the upper edge of the external oblique serves as an excellent reinforcement (fig. 2). As in a McArthur [10] repair of an inguinal hernia, the medial end of this strip of fascia is left attached and the free end is passed under the cord or round ligament and sutured to the reunited inguinal ligament with interrupted stitches of fine silk. This reconstructed ligament is a sound structure which can be utilized in the ordinary repair.

The inguinal ligament should not be needlessly sacrificed but there should be no hesitation in cutting it if the sac cannot be easily delivered. No originality is claimed for this method of dividing and reconstructing the inguinal ligament. It has been used on six occasions over a period of several years at the Peter Bent Brigham Hospital. In one case death occurred one year after operation from another cause and at postmortem examination it was possible to demonstrate a satisfactory inguinal ligament and a sound closure of the femoral canal. The other patients have been followed for periods of from three to five years since operation. No recurrences of the hernia have been noted.

The postoperative care of these patients should follow the established lines for patients with intestinal obstruction. However, the aged or feeble patient should be up and about in a wheelchair as early as the first postoperative day. This will do much to maintain tonus and may prevent pulmonary complications or thrombophlebitis. There is practically no danger of evisceration because the peritoneal incision in these cases is a small one. The likelihood of a recurrence of the hernia is of small consequence in comparison with the life of the patient.

SUMMARY

A study of fifty-one cases of strangulated femoral hernia indicates that a principal factor in the mortality is erroneous diagnosis. A contributory cause is the old age of many of the patients. Early diagnosis and proper surgical management assure a favorable prognosis even in the aged.

10. McArthur, L. L.: Autoplastic Sutures in Hernia and Other Diastases: Final Report, J. A. M. A. **43**: 1039 (Oct. 8) 1904.

Vision During Flight.—Vision is absolutely necessary for both aerial equilibration and orientation. If vision is eliminated during flight, all the other organs of equilibration have been found inadequate and the pilot becomes hopelessly confused. However, even vision is not as accurate in the air as it is on the ground. It is a common observation that the greater the distance between the airplane and the earth the slower it seems to move. This illusion is important in the training of pilots in that it creates a false sense of the degree of bank required in a turn to keep the airplane from side-slipping. It has also been observed that the greater the distance between the airplane and the earth the less the accuracy of visual depth perception and spatial orientation. Thus, only wide degrees of tilt can be recognized and it is only by the aid of instruments that an exact course parallel to the earth's surface can be flown with any degree of certainty. From this it is evident that even aerial vision gives us only an approximate idea of equilibration and orientation except when flying close to the ground.—Armstrong, Harry G.: Principles and Practice of Aviation Medicine, Baltimore, Williams & Wilkins Company, 1939.

DILANTIN SODIUM THERAPY IN EPILEPSY

REPORT OF STUDY IN PROGRESS

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CLEVELAND

Dilantin sodium was introduced by Merritt and Putnam [1] as a treatment for convulsant disorders, after experimental studies had shown its efficacy as an anticonvulsant.[2] In their first clinical contribution they reported favorable results in 200 cases, in the majority of which there were frequent convulsive seizures. They conclude their article with the statement "Sodium diphenyl hydantoinate is a valuable addition to the physician's armamentarium in the battle against epilepsy. Its use should be restricted for the present to that group of patients who do not respond to the less toxic forms of therapy previously in common use."

Through the courtesy of Dr. J. D. Ralston, of Parke, Davis & Co., a liberal supply of this medicament was made available for a clinical trial. In May 1938 treatment was started on several private patients and then extended to the members of an outpatient epileptic clinic at Lakeside Hospital. Patients were selected for a trial of dilantin sodium therapy largely on the basis of chronic epilepsy with frequent attacks.

We have treated some thirty patients during this period of eleven months. At first my associates [3] and I gave dilantin sodium in doses of from 0.1 to 0.2 Gm. three times a day, replacing the previous medication fairly promptly. As the result of additional experience, however, it was found more practical to make the substitution more gradually and to introduce the drug slowly.

RESULTS OF DILANTIN SODIUM THERAPY

The accompanying table lists the results of dilantin sodium therapy in a group of twenty-eight cases composed of those seen in private practice and of the epileptic clinic. Two pediatric cases studied by Dr. Schneider are not included.

The table summarizes the data in the twenty-eight cases from various standpoints: After the name, the age and the type and duration of epilepsy comes the column listing the anticonvulsant value of the drug. The items described as "marked benefit" represent total freedom of attacks, in two cases, to decided reduction in grand mal convulsions. The term "doubtful" is applied to those patients whose attacks were not materially altered as compared with the status during the previous sedative medication.

Next is a column listing the unfavorable actions of dilantin sodium under several subdivisions: blood, gums and neuropsychiatric manifestations. The details will be discussed later.

The last column is a general estimate of the clinical value of the new drug when the unfavorable reactions which it may have caused are deducted from its efficacy.

From the Neuropsychiatric Clinic, Lakeside Hospital, and the School of Medicine, Western Reserve University.

1. Merritt, H. H., and Putnam, T. J.: Sodium Diphenyl Hydantoinate in the Treatment of Convulsive Disorders, J. A. M. A. **111**: 1068 (Sept. 17) 1938.

2. Merritt, H. H.; Putnam, T. J., and Schwab, D. H.: A New Series of Anticonvulsant Drugs Tested by Experiments on Animals, Arch. Neurol. & Psychiat. **39**: 1003 (May) 1938. Putnam, T. J., and Merritt, H. H.: Experimental Determination of the Anticonvulsant Properties of Some Phenyl Derivatives, Science **85**: 525 (May 28) 1937.

3. Dr. H. J. Kumin, of the Epileptic Clinic, and Dr. W. F. Schneider, of the Pediatric Department, aided in this study.

The most significant fact revealed by the trial of dilantin sodium is its remarkable anticonvulsant value. Its therapeutic benefit has been excellent in at least ten of the twenty-eight cases listed in the table. This improvement is noteworthy because it was achieved in cases of severe involvement. The patients who became attack free or whose seizures were greatly reduced had been receiving treatment over a period of years with little or no benefit. In this group the clinical value was estimated as excellent because there was not only reduction of attacks but often an increased confidence. Some had side actions of a mild degree.

An additional group had some benefit, as indicated by a reduction in seizures, but the discomfort caused by the drug practically offset its therapeutic value. These results are considered "doubtful."

Summary of the Clinical Value of Dilantin Sodium in Twenty-Eight Cases of Epilepsy

No.	Patient	Age, Yr.	Type	Age at Onset, Yr.	Anticonvulsant Value	Side Actions: Neuro-psychiatric	Side Actions: Gums	Side Actions: Blood	Estimate of Efficiency
1	B. C.	35	Idiopathic	25	Marked	0	Slight	0	Excellent
2	E. M. A.	14	Idiopathic	3	Marked	0	0	0	Excellent
3	M. S.	31	Idiopathic	18	Marked	0	0	Temperature, eosinophilia	Excellent
4	S. N.	29	Idiopathic	19	Marked	0	Slight	0	Excellent
5	H. P.	28	Idiopathic	15	Marked	0	0	0	Excellent
6	M. L.	30	Idiopathic	20	Marked	Slight	0	0	Excellent
7	L. E. B.	22	Idiopathic	10	Marked	0	0	0	Excellent
8	B. T.	15	Idiopathic	5	Marked	Slight	0	0	Excellent
9	S. S.	36	Idiopathic	15	Marked	Temperature marked	+	0	Excellent
10	Lo. Br.	40	Idiopathic	30	Marked	Temperature	+	0	0	Excellent
11	S. M.	25	Idiopathic	16	Moderate	Mild	Slight	0	Moderate
12	M. B.	39	Idiopathic	26	Moderate	0	0	Temperature, rash and eosinophilia	Moderate
13	F. C.	38	Idiopathic	5	Moderate	Slight	0	0	Fair
14	M. P.	44	Idiopathic	28	Slight	0	0	Low white cell count	Fair
15	S. B. O.	29	Idiopathic	21	Doubtful	Tremors	0	0	Doubtful
16	R. B.	27	Idiopathic	14	Mild	0	0	0	Fair
17	M. R.	25	Idiopathic	12	Mild	0	Slight	0	Doubtful
18	J. C.	19	Organic	7	Mild	0	0	0	Doubtful
19	J. T.	25	Organic	5	None	Mild	0	0	None
20	To. Mu.	38	Idiopathic	10	Mild	Marked	0	0	Harmful (?)
21	T. M.	46	Idiopathic	15	Moderate	Moderate	0	0	Doubtful
22	P. M.	55	Idiopathic	35	Moderate	Paranoid	0	0	Harmful
23	G. O.	28	Idiopathic	15	Slight	Tremors	0	0	Slight
24	M. C.	24	Idiopathic	16	Slight	Moderate	0	0	Treatment discontinued
25	F. D. I.	42	Idiopathic	15	Questionable	?	?	?	Treatment discontinued
26	M. D.	21	Idiopathic	20	Moderate	Moderate	0	0	Treatment discontinued
27	J. S.	20	Organic	5	None	Unpleasant reaction	0	0	Treatment discontinued
28	P. D.	20	Idiopathic	5	Moderate	?	?	?	Treatment discontinued

Toward the end of the table are listed five patients in whom the efficacy of the drug could not be evaluated properly. They discontinued its use early. In part, as will be explained later, this was due to the abrupt change from phenobarbital to dilantin sodium, so that the patients experienced striking discomfort and perhaps little or no benefit. Likewise, this group of patients included persons with chronic epilepsy who had previously not responded to high fat diet, dehydration, sodium bromide and phenobarbital. In several instances one may interpret the action of dilantin sodium as being harmful: in two of the cases there developed definite irritability and suspiciousness, which in one instance reached a paranoid state. The unfavorable side actions of the drug will be next considered.

SIDE ACTIONS

Though the anticonvulsant value of dilantin sodium was striking, its unpleasant side actions have also been prominent. The majority of patients were disturbed by unpleasant and sometimes distressing symptoms during the first weeks after taking the medicament. A few patients had itching and a faint cutaneous rash, accompanied by eosinophilia; others showed swelling of the gums. The more common complaints involved the nervous system. These complaints included (*a*) neurologic symptoms, (*b*) vegetative and nervous reactions and (*c*) psychic difficulties.

(*a*) *Neurologic Symptoms.*—The neurologic difficulties consisted of tremors and ataxia. Common complaints were "I am trembly; my fingers are clumsy; I have a difficult time when I eat; I have to grasp my knife and fork more firmly or I will drop them; I am unable to sew; I feel unsteady and I have to watch my step when I walk up and down the stairs. Sometimes I have the feeling of being on a teeter-totter."

The tremors which are visible in the extended hands are not attended by loss of muscle tone, weakness or change in reflexes. The combination of tremor of the hands and subjective unsteadiness in walking impresses me as representing a cerebellar dysfunction caused by the drug. It is usually transitory, and the majority of patients soon become free of this handicap.

Less common complaints are blurring of vision, loss of taste and dysesthesias in the mouth.

(*b*) *Nervous Complaints.*—Many patients say "I feel jittery, uncomfortable, restless. I am conscious of my heart beating." Such patients manifest the consciousness of different parts of the body in a manner resembling the subjective sensations so common in neuroses.

(*c*) *Psychic Complaints.*—These include insomnia and irritability and, in several cases, suspiciousness and quarrelsomeness.

Three of the patients had psychic reactions which resembled a paranoid state. Though it was not an easy matter in the face of the peculiarities fairly common among epileptic persons to diagnose this condition, its appearance after administration of dilantin sodium and the fairly common pattern in several instances, as well

as an improvement when this treatment was discontinued, led to the conclusion that the drug may disturb judgment and poise. For example, patient 21 became embittered about his parents' neglect. From week to week he was more fault finding and quarrelsome. When medication was discontinued, he regained his normal composure. Patient 22, who had been placed in the Lakeside Hospital for study, later accused the house physicians of banging his head during the night and of torturing him with long wires which they were inserting into his body. These accusations represent a projection mechanism to explain headache and his interpretation of blood tests. When dilantin sodium was discontinued, he improved. Medication was resumed once more and the symptoms reappeared, to subside again when the drug was withdrawn.

These neuropsychiatric side actions are usually of short duration and tend to subside. Some patients do not have any symptoms at all; others are troubled during the first few weeks and develop a tolerance for them. Where they persist, it is advisable to discontinue the drug—a step which the patients usually take of their own accord.

Other side reactions studied include the following manifestations:

(*a*) *Skin.*—In two cases slight dermatitis developed, a complication which Merritt and Putnam considered most troublesome. In both instances a temporary reduction in the dosage brought about a relief of the cutaneous symptoms. Later the medication was resumed without the reappearance of this complication.

(*b*) *Gums.*—In the fall of 1938 my attention was called to this complication by Dr. O. P. Kimball, who was the first to observe changes in the gums during treatment with dilantin sodium. At this time he presented a patient showing marked gum changes, a condition which he has recently reported.[4]

Among the twenty-eight patients in our group, there were seven who had noticeable changes in their lower gums. This consisted of a swelling at the root margin of the teeth which was puffy and whitish and, in some instances, showed increased vascularity. Though puffy, the gums were not tender or bleeding. With the exception of one, the patients were entirely unaware of this change. Patient 21 complained of an uncomfortable sensation in the mouth, "as though the teeth were loose in their sockets."

When this gum swelling was observed over a period of weeks or months there was no remarkable change. At certain times it appears to be less marked than at others. What the exact nature of this swelling is will be determined by later studies.

Kimball found that patients who showed marked hyperplasia of the gums showed a definite deficiency of vitamin C. However, studies made by the laboratories of Parke, Davis & Co.[5] on the vitamin C content of the blood of rats receiving large doses of dilantin sodium showed no decrease in this vitamin.

(*c*) *Gastrointestinal.*—Anorexia, gastric distress and loss of weight occurred in several cases.

ADDITIONAL OBSERVATIONS

1. *Urinalysis.*—Specimens examined showed no albumin or sugar and no white or red blood cells.

2. *Blood Studies.*—During the earlier weeks of medication several of the patients have shown eosinophilia, particularly in connection with the appearance of dermatitis. However, the subsequent studies did not reveal a significant change in red cell, white cell or hemoglobin values or in the differential count. This also was the opinion expressed by Drs. Merritt and Putnam.

3. *Mental Tests.*—Mrs. Barnes has made careful psychologic examinations, particularly with the Babcock test, on the dispensary patients receiving dilantin sodium. The results have been compared with the data accumulated in the course of previous years.[6] The tests to date show no unfavorable influence on intelligence or learning ability as a result of this new medication. The intelligence ratings have been at least as good as, if not slightly better than, tests made in previous years. These measurements corroborate the clinical impression of undisturbed intelligence when emotional changes have not upset the poise of the patient.

REPORT OF CASES

A. *Successful Result* (case 5).—H. P., a woman aged 30, had suffered from epileptic attacks since the age of 15. There was a history of a head injury at 13, on the basis of which an encephalogram was made. This procedure, as well as a neurologic study, showed no abnormality. The patient continued to suffer frequent attacks from adolescence on. A careful record kept by the family indicated an average of at least four convulsive seizures a month and more numerous petit mal attacks. Early in 1938 the patient was placed on phenobarbital, with a dose of one-half grain (0.03 Gm.) three times a day. Under this regimen she continued to have grand mal attacks and frequent "lapses." As a result of this illness she spent quite a bit of time in bed, was almost constantly watched and was never permitted to leave the house alone.

Treatment with dilantin sodium was started in May 1938, replacing the phenobarbital. During the first week she had one convulsion. However, she has continued with dilantin sodium up to the present.

In June she complained of feeling trembly and unsteady, with difficulty in using knife and fork, and stated that objects often seemed to be moving. Examination showed a tremor of the extended hands and some finger to nose ataxia. Though she complained subjectively of unsteadiness in walking there was no demonstrable gait disorder. In June there was a slight cutaneous lesion, more acneform than urticarial. During June and July there were no attacks and the tremors were less disturbing. From June to the present, a period of ten months, the patient has been entirely free from attacks. The side reactions are minimal. There have been no abnormal changes in the urine or blood.

Mentally, this patient is tremendously improved. She has become more confident and more active. The personality change, associated with a feeling of well-being and the freedom from fear of attacks, has been remarkable.

B. *Moderately Successful Result* (case 7).—L. B., a man aged 24, was a student who had been troubled by idiopathic epilepsy since the age of 8. Thorough studies in the hospital, including an encephalogram, yielded no significant information. He had been given phenobarbital, one-half grain three times a day, despite which he continued to have three or four attacks every month. The addition of sodium bromide did not materially alter the number of seizures. Administration of dilantin sodium was started at the end of May, with a dosage of three capsules daily. The patient had practically no discomfort from the drug. He had one major attack in June and another in August. He has averaged less than one attack a month up to the present.

4. Kimball, O. P.: Treatment of Epilepsy, J. A. M. A. **112**: 1244 (April 1) 1939.
5. Unpublished data from the laboratories of Parke, Davis & Co.
6. Barnes, Margaret R., and Fetterman, Joseph L.: The Mentality of Dispensary Epileptic Patients, Arch. Neurol. & Psychiat. **40**: 903 (Nov.) 1938.

The examination of the urine showed no sugar or albumin; the blood counts were unchanged.

C. *Unfavorable Result* (case 21).—T. M., a man in the early thirties, had been troubled by attacks of both grand and petit mal for about a decade. Previous therapy, including bromides and phenobarbital, did not alter the course of his illness. Treatment with dilantin sodium was begun in June and continued until December. During the summer he complained a great deal about tremors, palpitation and sleeplessness. He became hypercritical, finding fault with everything at home, reprimanding his parents and making efforts to change things. His irritability was so marked that the family complained that it was almost impossible to live with him. The dosage was stepped up from three capsules daily to four or five because the attacks continued. When the marked irritability developed, medication was reduced. Finally the patient himself discontinued all treatment. He developed more poise and was happier and more friendly.

COMPARISON BETWEEN THE ACTIONS OF DILANTIN SODIUM AND PHENOBARBITAL

On the basis of previous experience, phenobarbital was the remedy of choice, with adjustments of dosage to the needs of each patient. The experience up to the present shows that as an anticonvulsant dilantin sodium is superior to phenobarbital alone and to the combination of phenobarbital with sodium bromide. Our clinical results confirm the favorable experience of Drs. Merritt and Putnam, both experimentally and clinically. The number of patients tremendously relieved by dilantin sodium who had shown little or no improvement with phenobarbital is noteworthy. One must remember also that these patients were selected because of the severity of the epilepsy.

Though dilantin sodium has proved superior to phenobarbital with many patients, its time or site of action must be different from that of phenobarbital. In several instances, when phenobarbital was rapidly displaced by dilantin sodium the patient had one or two seizures. Yet as the dilantin was continued there was a remarkable freedom from attacks. This would indicate that either dilantin sodium acts at a different site in the nervous system or is much slower in building up a defense against attacks. The second theory was the opinion of Drs. Merritt and Putnam, who pointed out that a definite accumulation of dilantin sodium is necessary before its therapeutic effect is realized. As a rule, phenobarbital exhibits its anticonvulsant properties more promptly, although the protective value may decrease in the course of time. Patient 6 had gained considerable freedom from attacks under treatment with dilantin sodium. She decided that she was well and discontinued this drug. A series of seizures then developed. In this respect the sudden cessation of dilantin sodium acts as does the sudden withdrawal of phenobarbital—there is a tendency for a shower of attacks. The resumption of the drug did not check the seizures until several days had elapsed.

A more fundamental difference between the two medicaments is the contrast between the usual sedative effect of phenobarbital and the frequently disquieting action of dilantin sodium. For most patients phenobarbital is soothing and relaxing and may become depressing. Dilantin sodium certainly does not make patients dull or drowsy. Rather, it tends to produce alertness and wakefulness. Several of the patients have commented on their keenness and ability to do better work when taking the drug; in other instances this alertness led to irritability and sleeplessness. One may infer from this difference that the anticonvulsant property of phenobarbital is a part of its general quieting effect on the central nervous system, whereas the anticonvulsant property of dilantin sodium is a more specific characteristic.

In a clinical way, one may utilize this difference between the two drugs. For patients who are drowsy with phenobarbital, dilantin sodium certainly should be tried. For those having occasional and infrequent attacks, the mildness of phenobarbital is preferable to the discomforts that may arise from dilantin sodium. On the other hand, for those who are not benefited by sedative medication, particularly if they have been suffering from frequent attacks, dilantin sodium is worthy of a trial. For the probability of its anticonvulsant value and the fact that the disturbing side actions usually grow milder in the course of time may justify its use. But it is questionable whether a patient whose attacks are few and far between would exchange the peaceful sedative effect of phenobarbital for the ruffled, stormy action of dilantin sodium.

In some instances a combination of the two drugs has been used. As yet I have not observed any profound synergistic action from such medication.

PRACTICAL POINTS IN TREATMENT

To avoid untoward symptoms from the sudden withdrawal of phenobarbital and at the same time to lessen any probable side actions from dilantin sodium, it is prudent to administer this new drug in gradually increasing doses. If a patient has been receiving, let us say, three tablets of phenobarbital daily, it is a good rule to replace one tablet by one capsule of dilantin sodium daily during the first week and then, during the second week, to replace two of the phenobarbital doses by two capsules of the other drug. During the third week, if there are no attacks, one may replace the phenobarbital entirely, but it is safer to continue with at least one dose of phenobarbital plus three capsules of dilantin sodium. Should attacks continue and no complex side actions develop, the dose of dilantin may be increased to four or five capsules daily for an adult.

This scheme depends on the gradual reduction of phenobarbital over a period of from three to four or five weeks, with the simultaneous replacement by dilantin sodium in gradually increasing amounts.

If a dermatitis or marked neuropsychiatric symptoms appear, it is best to reduce the dose of dilantin sodium. If the medication is reduced, it is my custom to substitute an equivalent amount of phenobarbital (1½ grains [0.1 Gm.] of phenobarbital for 1½ grains of dilantin sodium).

Patients should not be allowed to take dilantin sodium indiscriminately. The drug should be prescribed under the careful supervision of the physician. It is important to guide the patient not only in the doses which he takes but even in the matter of cessation, for sudden withdrawal of dilantin sodium, like the cessation of phenobarbital, may precipitate a shower of attacks.

COMMENT

The clinical observations of the effect of dilantin sodium on a group of chronic epileptic patients indicate that the drug possesses high therapeutic efficacy as an anticonvulsant. However, it also exhibits marked side actions. The complications are of various kinds; they are chiefly neuropsychiatric but may also include temporary involvement of the skin and a peculiar swelling of the gums. Like other drugs (sulfanilamide) which

possess both a high value and the possibility of major complications, dilantin sodium should be used if milder medication fails and then only under careful supervision. Under such control it may prove to be of inestimable value in reducing the number of attacks and allowing the patient to be alert and active.

CONCLUSION

The clinical trial of dilantin sodium in the treatment of twenty-eight epileptic patients indicates a high degree of therapeutic value. It has demonstrated its anticonvulsant qualities even when phenobarbital, alone or in combination with bromides, has failed. Dilantin sodium has distinct disquieting side actions which may become major complications. Further work will be done to determine its value over a longer period and to learn the mildness or severity of the complications after a longer interval has elapsed.

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THE USE OF 2-METHYL-1,4-NAPHTHOQUINONE (A SYNTHETIC VITAMIN K SUBSTITUTE)

IN THE TREATMENT OF PROTHROMBIN DEFICIENCY IN PATIENTS

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The isolation of vitamin K in pure form has led to the discovery that several simpler naphthoquinones share the antihemorrhagic properties of vitamin K. The most potent of the synthetic preparations so far assayed is 2-methyl 1,4-naphthoquinone. A clinical trial of this material on ten patients with prothrombin deficiency seems to confirm the high potency demonstrated for this compound by chick assays. The results are given in the accompanying table.

Three of the patients in whom a satisfactory response was obtained had failed to respond satisfactorily to various forms of vitamin K. Seven of the patients responded to an oral dose of 1 mg. of the 2-methyl-1, 4-naphthoquinone a day and in six cases the prothrombin time returned to normal within twenty-four hours or less after the initial dose had been given. In two cases (5 and 6) the prothrombin time did not return to normal although the dose was later increased. In case 5 the prothrombin time subsequently rose in spite of continued treatment. The patient was a baby aged 6 months, deeply jaundiced from birth. Autopsy subsequently showed stenosis of the bile ducts with marked damage of the liver. Patient 1 also required larger doses. Patient 8 received only 1 mg. and in thirteen hours his prothrombin time declined from forty seconds to twenty-four seconds. No further determinations were made, as the patient died a short time later from the primary disease.

All the patients received bile salts, either in the form of iron bile salts (Lilly), from 0.6 to 2.0 Gm. a day, or of sodium deoxycholate (Riedel-De-Haen), from 0.015 to 0.40 Gm. a day.

COMMENT

The purification of vitamin K in crystalline form was accomplished by McKee, Binkley, MacCorquodale, Thayer and Doisy.[1] Two substances were obtained. The more potent, K_1, was derived from alfalfa and the less potent, K_2, was derived from fish meal. Studies of the chemical structure of these compounds indicated that they were substituted 1,4-naphthoquinones with some difference in the side chains. Since then other naphthoquinones have been shown to possess antihemorrhagic activity. Almquist and Klose[2] showed that phthiocol or 2-methyl-3-hydroxy-1,4-naphthoquinone had antihemorrhagic properties. This compound was first discovered by Anderson and Newman,[3] in the tubercle bacillus and was subsequently synthesized by Newman, Crowder and Anderson.[4]

The availability of this compound led to its early use in practice. Smith, Ziffren, Owen and Hoffman[5] reported success in treatment of prothrombin deficiency in one case and Butt, Snell and Osterberg[6] recorded using it in ten cases at the Mayo Clinic. The dose employed was 100 mg. by mouth or from 25 to 50 mg. intravenously. The 50 mg. dose proved to be more satisfactory. Good responses were obtained, but the prothrombin time did not return to normal in every case.

According to chick assay, 2-allyl-1,4-naphthoquinone was found to be very active;[7] 2,3-dimethyl-1,4-naphthoquinone was also found to be very active;[8] 2-hydroxy-1,4-naphthoquinone is also active but less so than phthiocol.[9]

MacCorquodale, Binkley, Thayer and Doisy[10] reported that they had assayed a variety of naphthoquinones and that only among the compounds of 1,4-naphthoquinone had substances with vitamin K activity been found. They believe that K_1 is 2-methyl-3-phytyl-1,4-naphthoquinone.

There is general agreement that 2-methyl-1,4-naphthoquinone is the most potent of the vitamin K substitutes so far assayed. This is clearly shown in the data of Ansbacher and Fernholz[11] and is also indicated by the reports of Thayer, Cheney, Binkley, MacCorquodale and Doisy[12] and of Almquist and Klose.[9] The assays of these three laboratories do not, however, agree on the relative strengths of this compound to phthiocol and to K_1. Ansbacher and Fernholz[11] believe that the 2-methyl compound is several hundred times as potent as phthiocol and is practically as active as

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The 2-methyl-1,4-naphthoquinone was supplied by the Squibb Institute for Medical Research through the courtesy of Dr. Stefan Ansbacher.

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The patients studied were under the care of members of the staffs of the Hospital of the University of Pennsylvania and the Jewish Hospital of Philadelphia, to whom the authors are indebted for the privilege of this study.

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11. Ansbacher, Stefan, and Fernholz, E.: J. Am. Chem. Soc. **61**: 1924, 1939.
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vitamin K itself. Thayer and his associates, while agreeing that it is the most active of the synthetic materials so far studied, state that it is only one hundredth as active as pure K. Almquist and Klose [9] state that it is one tenth as active as their refined alfalfa extract.[12a]

As the absolute amount of each of these substances needed for the formation of prothrombin is very small, it is probable that cost, ease of administration, uniformity of results and absence of toxic effects will ultimately determine which of them will be most generally used.

The pharmacology of 2-methyl-1,4-naphthoquinone has not been fully studied. Preliminary toxicologic studies indicate that doses 10,000 times the therapeutic dose may produce hemolytic anemia in animals.[13] The largest dose that we have employed is 0.5 mg. per kilogram daily. No toxic manifestations have been observed that seemed to have any relation to the drug. One of the patients has received a total of 61 mg. over a period of one month.

Results of the Treatment of Prothrombin Deficiency with 2-Methyl-1,4-Naphthoquinone

Case	Diagnosis	Prothrombin Time Before Treatment, Sec.*	Treatment: Amount per Day, Mg.	Treatment: Number of Days	Prothrombin Level After Treatment, Sec.*
1	Carcinoma of pancreas	36	40	1	22‡
2	Carcinoma of pancreas	28	1	1	20
3	Carcinoma of colon	31	1	1	22
4	Obstructive jaundice	36	1	1	23
5	Icterus gravis	45	1	3	31
6	Obstructive jaundice	36	1	1	24
7	Carcinoma of colon	32	4	1	21§
8	Obstructive jaundice complicating Hodgkin's disease	40	1	13 hours	24
9	Newborn infant with hemorrhagic tendency	38	1	1	20
10	Newborn infant with hemorrhagic tendency	135	1	1	24

* Prothrombin times were determined by the method of Quick (On the Various Properties of Thromboplastin [Aqueous Tissue Extracts], Am. J. Physiol. **114**:292 [Jan. 7] 1936). Normal controls ranged from nineteen to twenty-four seconds.

† One half of this amount was given by rectum as the patient was having a gastric hemorrhage with frequent emesis.

‡ Transfusion; gastric hemorrhage.

§ Transfusion.

CONCLUSIONS

Ten patients with demonstrated prothrombin deficiencies were treated with 2-methyl-1,4-naphthoquinone. All but one of these patients responded satisfactorily to doses of from 1 to 4 mg. a day orally.

In three cases hemorrhagic phenomena occurred before the first dose was given. In all these the hemorrhage was controlled.

2-Methyl-1,4-naphthoquinone appears to be the most potent agent for the treatment of prothrombin deficiency so far employed clinically.

No toxic effects were observed in this group of patients.

12a. Later reports (Thayer, S. A., and others: J. Am. Chem. Soc. **61**:2563, 1939. Tishler, M., and Sampson, W. L., ibid. **61**:2563, 1939. Almquist, H. J., and Klose, A. A.: J. Biol. Chem. **130**:787-789, 1939) have confirmed the statement of Anslacher and Fernholz that the antihemorrhagic activity of 2-methyl-1,4-naphthoquinone is at least as great as that of vitamin K. One mg. of the drug may be dissolved in 10 cc. of physiologic solution of sodium chloride for intravenous administration. Three mg. during a period of forty hours reduced the prothrombin time in a case of hepatic cirrhosis from 35 seconds to a normal level of 22 seconds. The same dose intravenously was used successfully in an additional patient with obstructive jaundice with prothrombin deficiency.

13. Personal communication from Dr. W. L. Ruigh of the Squibb Institute for Medical Research.

GUMMA SIMULATING TUMOR OF THE CAUDA EQUINA

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Gumma simulating neoplasm of the spinal cord has always been a rarity hardly deserving consideration, yet most works dealing with the clinical and pathologic aspects of syphilis of the nervous system mention gummatous involvement of the cord and spinal meninges. In all likelihood the reason why the clinical aspects have received so little consideration is that gumma of these structures usually does not attain significant size, and also its effects may be overshadowed by the manifestations of myelitis and meningitis, which are apt to precede or accompany it.

The case presented here may not add anything significant to the recognized pathology of syphilis of the nervous system but it is an interesting reminder of the vagaries of the disease and there are few examples of its kind on record.

REPORT OF CASE

Symptoms and signs of a lesion of the cauda equina, progressive for one year before admission. Lumbar puncture showed xanthochromic fluid and evidence of a nearly complete block of the spinal canal. Spinal fluid and blood supposed to be negative for syphilis. At operation a gumma of the cauda equina was found and material was taken for a biopsy. Postoperative institution of antisyphilitic therapy. Two years' follow-up shows marked return of motor function, loss of pain, return of bladder function and normal spinal fluid.

History.—Bernard Y., aged 41, a Spanish born laborer, was admitted May 3, 1937, from St. Joseph's Hospital at Paterson, N. J. Except for a penile sore in 1917, which had been treated locally, he had had no remarkable sickness until he developed, in the spring of 1936, weakness in the right lower extremity and radiating pain from the right sacral region down the posterior thigh and calf. The degree of pain and weakness varied during the next year, but in March severe radiating pain developed in both lower extremities and over a period of several weeks progressed in these extremities to a point which made it impossible for him to support his weight. About the same time he developed urinary retention.

At the New Jersey Hospital, where he was admitted April 19, 1937, he was studied and the urinary retention treated with an inlying catheter. It is reported that two lumbar punctures were performed and each time only 2 cc. of xanthochromic fluid could be obtained. A cisternal puncture, however, produced clear fluid and neither this fluid nor his blood were said to show a positive Wassermann reaction. He was transferred by ambulance to us with this information and a diagnosis of spinal cord tumor.

Examination.—He was of good muscular development and, as he lay in bed, was in only moderate discomfort from pain in his lower extremities. All head functions were normal. The chest and abdomen also were within normal limits.

The neurologic examination revealed nothing remarkable down to the lumbar segments. The right thigh and gluteal regions and the left calf were moderately atrophied. Motion of the right lower extremity was limited to weak rotation and extension at the hip; on the left, all motions were possible but very weakly performed. Muscle tone was slightly diminished and all reflexes were absent in the lower extremities but for a slight patellar response on the left. The cremasteric reflexes were absent but the abdominals were present. Sensation (fig. 1) was disturbed over the right thigh and gluteal areas and over the left saddle, glutcal, outer leg and foot areas.

On lumbar puncture in the third interspace, xanthochromic fluid was obtained. The initial pressure was 180 mm. of water

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and jugular compression produced a very slow rise and fall. The cell count of this fluid was 110 per cubic millimeter (85 per cent polymorphonuclear leukocytes) and the Pandy test was positive. Blood Wassermann and Kahn tests were negative. On the basis of this and the report of the negative Wassermann reaction found on examination of the cisternal fluid at the first hospital, the necessity of waiting for the Wassermann report on the spinal fluid was dismissed.

Iodized poppyseed oil 3 cc. was introduced through the lumbar puncture needle and its position observed by fluoroscopy. When the body was tilted head down, the oil indicated partial obstruction at the first lumbar interspace; when the body was tilted feet down, the oil failed, even after two hours, to fill the lower lumbar and sacral canal as it should normally (fig. 2, inset).

Operation and Result.—May 7 with the use of ether anesthesia laminectomy of the first, second and third lumbar vertebrae was performed and, after the opening of the dura, the conus medullaris and upper cauda equina were exposed. The roots of the cauda equina were slightly swollen and loosely stuck together by what appeared to be a low grade inflammatory

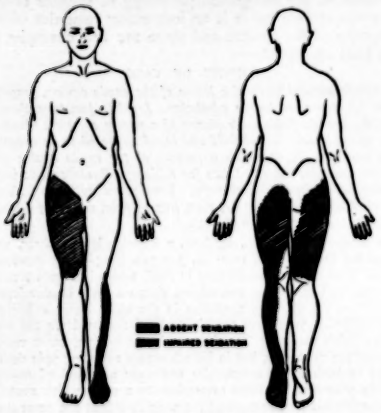

Fig. 1.—Absent and impaired sensation.

process. At the level of the second lumbar vertebra, corresponding to the position of the defect demonstrated by the iodized oil, there was a firm, rubbery, yellowish white tumor mass measuring about 2 cm. in its widest diameter (fig. 2). The tumor appeared to rise in one of the main roots on the left side and was slightly adherent to the dura, but at least five or six adjacent roots were firmly fixed to the mass. Because of the general inflammatory appearance of the region, a syphiloma or tuberculoma was suspected. A small biopsy of the tumor was taken, the oil removed and the wound closed.

Pathologic Examination.—The tissue removed for microscopic study was 7 by 5 by 2 mm. in size. Microscopic examination showed a dense arrangement of epithelioid cells intermingled with many mononuclear wandering cells. The general arrangement was irregular but there was a tendency for the formation of tubercles. There were several giant cells present in the section and in one portion there was an area of caseation and necrosis. No tubercle bacilli or spirochetes could be identified after careful search. The diagnosis was tuberculoma or gumma.

Additional Data.—The remainder of the laboratory examination on the spinal fluid (completed after operation) revealed total protein 0.3 per cent, sugar 88, chlorides 680, colloidal gold 0123443210 and Wassermann reaction ++ in dilutions of 0.03 and 0.05 cc. The Mantoux test with 0.1 cc. of 1:1,000 and 0.1 cc. of 1:100 old tuberculin intradermally was negative.

Postoperative Course.—The wound healed nicely without complication. There was no change in the symptoms or signs immediately following operation. Two weeks after operation antisyphilitic therapy was started, beginning with potassium iodide 2 Gm. three times a day and bismuth salicylate 0.2 Gm. weekly. Within two weeks after the specific therapy was started the symptoms began to improve; pain greatly diminished; the catheter was removed from the bladder and the patient voided voluntarily; motion in the lower extremities began to improve. In another week he got out of bed and walked with the aid of a little support. A blood examination (June 10, two and a half weeks after the specific therapy was started) showed the Kline reaction ++++ and the Wassermann reaction negative. General improvement continued and the patient was discharged June 29, 1937, fifty-three days after operation. At this time he was free from all pain; he could walk with a hobbling gait; he had perfect control of his bladder and his cystitis had subsided; the sensory changes were about the same as those found on admission.

Follow-Up.—After leaving the hospital he began to drive his automobile back and forth to the clinic for his treatments, and return of strength in the lower extremities continued, although the weakness of the flexors and extensors of the ankles affected his gait and necessitated his manipulating the brake and clutch pedals with his heels rather than his toes. He received continuous treatment for over a year (until July 1938). The total for this period was twenty-five injections of bismuth salicylate (0.2 Gm. doses) and twenty-two injections of neoarsphenamine in increasing doses from 0.1 to 0.6 Gm. Finally twelve injections of arsphenamine (0.4 Gm. doses) were given. At the end of this time he felt so well that he failed to come for treatment and returned only after urging in April 1939.

Two years after operation, on complete check-up, he was found to complain only of trifling weakness of the lower extremities, mostly in the ankles; there was steady increase in motility for one and a half years but none thereafter. It is impossible for him to stand on his heels or toes, although there is virtually complete return of strength elsewhere in the extremities. There is very slight atrophy of the left buttock and thigh. Whereas all reflexes but a sluggish right patellar jerk were absent prior to operation, after two years the right patellar jerk was ++++ and the left ++; the ankle jerks were absent; the plantar responses were flexor though sluggish. The sensory impairment showed little or no change from the original condition but there were no pains or paresthesias of any kind. Bladder and rectal functions were normal. Blood Wassermann and Kline reactions were negative. The spinal fluid showed normal color and manometrics, cells none, total protein 0.15 per cent, gold curve 1112100000, Wassermann reaction negative in all dilutions from 0.005 to 0.6. He has consented to resume treatment.

COMMENT

A nineteen year interval existed in this case between the initial lesion and the onset of symptoms of syphilis of the nervous system. A year elapsed between the onset of pain and the final development of urinary retention and loss of motility. There was nothing about the conditions found to indicate that the disease involved other than the cauda equina, and with the evidence of obstruction of the spinal canal a neoplasm seemed likely. The failure of the iodized oil to descend fully into the sacral end of the meningeal sac, no doubt as a result of adhesions there, should have suggested a condition other than a localized tumor, though a mass at the level of the second vertebral body was definitely outlined by the oil. The information concerning the Wassermann reactions of both blood and spinal fluid prior to operation was to the effect that they were negative. But there must have been an error regarding the spinal fluid, for it subsequently was found to be positive and the blood was found, after provocative treatment, to be positive as well (negative Wassermann but 4+ Kline).

The operation served no purpose but to establish the diagnosis as not that of neoplasm. It was impossible to differentiate syphilis from tuberculosis in the gross and

microscopic appearance of the lesion, but the absence of signs of tuberculosis elsewhere in the body and the establishment of positive tests for syphilis clinched the diagnosis.

If the presence of syphilis by serologic or complement fixation tests had been known originally, specific therapy should, of course, have been tried before exploratory operation; but no harm was done by operation and it has been valuable to know the exact nature of the disease. There was but one gummatous tumor in the exposed region and it was sufficient to explain all the symptoms and neurologic phenomena. The rapid response to treatment is both interesting and gratifying and, even though it is recognized that a certain amount of spontaneous remission might occur, there is little doubt that the antisyphilitic treatment here deserves the major credit.

Gumma of the central nervous system is a late development of syphilis. It almost invariably represents but a part of a more widely spread involvement of the nervous system, although it may sometimes be the only part of which there are clinical manifestations. The smaller gumma often goes unrecognized while the larger may be clinically indistinguishable from a neoplasm. Its most frequent location is the brain, and in the past it was thought to occur so regularly as to comprise an impressive portion of all tumors of the brain; but this is no longer true and gumma of the brain is now only occasionally encountered in neurosurgical clinics or elsewhere. Even so, it always deserves consideration in the differential diagnosis of intracranial tumors.

Gumma of the cord occurs even less often than of the brain and deserves little consideration in the differential diagnosis of intraspinal tumors. The same cannot be said, however, for other forms of syphilitic diseases of the cord, since meningitis, myelitis and meningomyelitis are the usual syphilitic lesions and can, in part or wholly, simulate a neoplasm.

With few exceptions, gumma of the central nervous system has its origin in the meninges; and, while its extension may be into the substance of the cord or brain as the case may be, occasionally its growth is entirely extraparenchymal. Extension into the cord results in a fusiform enlargement and clinical signs of a partial or complete transverse myelitis that may have all the aspects of a glioma. A single intramedullary gumma is more usual but multiple ones do occur. The extramedullary gumma may also be single or multiple but in this case the latter is more frequent and the size may vary from small rice-grain nodules to larger tumors measuring from 2 to 3 cm. There is a tendency for the slowly growing extramedullary gumma to form a flattened mass which either locally compresses the cord or completely encircles it. Even though this type may not actually invade the cord it becomes adherent to its pial covering. The adjacent nerve roots on the other hand are often both compressed and invaded, although complete destruction of a root is exceptional.

There are instances, according to Nonne, in which gummatous nodules form on the nerve roots without the presence of more than minimal involvement of the meninges. The pathologic appearance is that of single or multiple cylindric or spindle shaped enlargements along the course of the nerve root, the multiple arrangement looking much like "pearls on a string." Nonne states that these formations are more apt to occur on roots in the cervical and dorsolumbar regions but cites Kahane's statement that the cauda equina may be affected in the same manner. This is the only reference encountered in which a gummatous process of the cauda equina, comparable to the author's case, is directly referred to, although Winkelman and others have pointed out that syphilitic meningitis and radiculitis seem to have a favorite location in the cauda equina.

The clinical manifestations of an intraspinal gumma would obviously vary greatly, depending on its location and the extent of its involvement of cord, nerve roots and meninges. In general it may be said that the significant features of the syndrome, particularly with relation to the extramedullary gumma, are usually, first of all, radiating pains and hyperesthesias resulting from irritation of sensory roots. Later in the progress of the disease, further compression or secondary invasion of both sensory and motor roots leads to circumscribed anesthesias and localized palsies of a lower motor neuronal type. The latter implies atrophy, flaccidity and fibrillary twitching of the muscles and an absence of reflexes. Finally, with the increase in the size of the tumor and compression of the cord there will be evidence of partial or complete transverse myelitis consisting of spastic paralysis, widespread sensory loss and impaired function of the bladder and rectum.

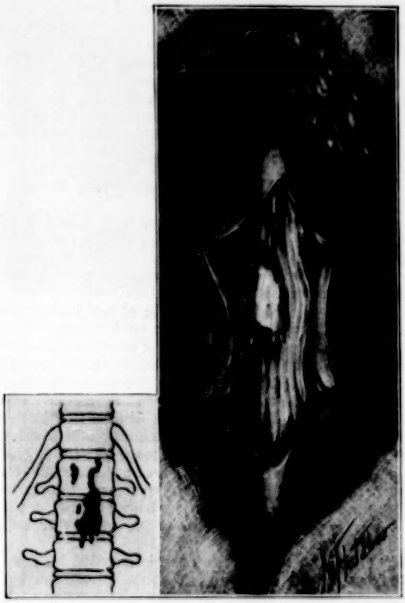

Fig. 2.—Tumor mass at level of second lumbar vertebra, corresponding to position of defect demonstrated (as shown in inset) by iodized oil.

In case the gumma involves the cauda equina (as in the case reported here) the signs would, of course, not be those of compression of the cord but only of involvement of the lumbar and sacral roots, characterized first by radiating pains in the lower extremities and later by impaired sensation, flaccid paralysis, atrophy, loss of reflexes and disturbed function of the bladder and rectum.

Thus in every respect a gumma arising from the spinal meninges can produce a clinical picture indistinguishable from an intraspinal neoplasm; this has been attested by numerous authorities.[1] Nonne [2] states that "in general one can think of the possibility of a gumma whenever the symptoms of an extra- or intramedullary tumor are present" and he refers to cases described by Osler, Orlowsky, Gowers and Williamson. In Rosenthal's case, cited by Nonne, "the tumor (gumma) was 3 cm. long and compressed the cord from the second to the third cervical roots." Winkelman [3] reports the case of a physician suspected of having a new growth compressing the cord who at operation was found to have "focal gummatous meningomyelitis." Southard and Solomon [4] report, as an illustration of syphilis of the nervous system, a case of compression of the cervical cord by a gumma of the meninges.

Of course it has long been known that syphilitic pachymeningitis, without gummatous formation, may of itself occasionally produce such thickening and contractile scarring of the meninges as to cause the effects of compression of the cord. The classic example of this was first described by Charcot in 1871 under the heading of "pachymeningitis cervicalis hypertrophica." It may be impossible to differentiate clinically this condition from that of gumma.

The differentiation of a gumma from a nodule of tuberculosis may offer considerable difficulty even when the lesion is examined both grossly and microscopically. Final decision often rests on distinguishing one of the diseases elsewhere in the body.

Study of the spinal fluid can be of but limited aid in differentiating a gumma from an intraspinal neoplasm. The abnormal manometric observations, xanthochromia, increased cell count and increased protein content of the spinal fluid are all conditions that may be common to the two. The Wassermann reaction alone is the distinctive difference but implicit reliance in this differential point is sure to be misleading occasionally; on the one hand the Wassermann test might fail to give a positive reaction in the presence of a gumma, and on the other hand it has been an experience common to all neurosurgical clinics to find both syphilis of the nervous system and neoplasm of the cord present in the same patient.

A useful test for differentiation in questionable cases would be a trial period on antisyphilitic treatment but with the realization that even this has limitations. It has been found that gummatous lesions do not always respond to treatment and certainly with gumma of the brain, undue temporizing with nonoperative therapy has no place.[5]

A reasonable attitude to assume with regard to treatment in cases in which there is a question of the diagnosis between syphilitic and neoplastic compression of the cord is to try a short period of antisyphilitic treatment not exceeding a few weeks and, if no improvement results, an exploratory laminectomy should not be delayed. When a gumma is disclosed at operation there is usually little opportunity to do anything about it surgically. No attempt should be made to remove an intramedullary gumma, but an extramedullary one might with reason be resected provided the procedure necessitated no needless damage to viable structures. Constricting bands may be cut and the dura may be left unclosed as a decompressive measure if occasion demands.

The prognosis in the treatment of gummatous disease of the nervous system depends largely on the stage at which intensive antisyphilitic treatment is started. Hope for at least some improvement is always justifiable even though the results of treatment in some cases are disappointing. Winkelman states that even when treatment is begun early the improvement obtained stops short of complete recovery.

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ROENTGEN STUDY OF INTESTINAL MOTILITY AS INFLUENCED BY BRAN

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The very extensive use of bran as a laxative challenged this study of the influence of this material, often considered merely a dietary constituent, on the functions of the bowel.

That bran has an influence on intestinal evacuation is a commonplace observation. That bran constitutes a necessity to keep in good health certain herbivora under conditions of domestication is also quite generally admitted. The question we have set ourselves to answer is in what way bran affects the intestinal functions of man: does it stimulate peristalsis, and if so where; or does it stimulate secretions; does it produce irritation? Particularly do we desire to determine the effect of bran on persons suffering from "constipation," particularly in what forms of colon stasis bran may be useful and in what varieties it is of no value; also to what extent bran may be harmful in conditions of disease and how its effects are produced. The observations reported in this study deal chiefly with the effects of bran on intestinal motility.

Since the roentgen rays enable us to obtain ocular demonstration of the progress of material through the gastrointestinal tract, this method of investigation certainly assumes a role of first importance in the attack on our problem. In looking over the literature we discovered, much to our disappointment, that there exists nowhere a generally accepted opinion as to the exact time relations of the passage of a contrast meal through the "normal" gastrointestinal tract. This is due to lack of a sufficiently extensive study of this question.

To make our observations reliable and a basis for our subsequent study on persons suffering from constipation, we have thought it necessary to study at least a hundred different healthy individuals. We subjected these to gastrointestinal serial roentgenologic exami-

Technical cooperation was given by William C. Tinsley.
With the assistance of Michael H. Streicher, M.D., of the Department of Medicine, University of Illinois College of Medicine.
From the Department of Pharmacology and Therapeutics and the Department of Roentgenology, University of Illinois College of Medicine. Assisted by a grant from the W. K. Kellogg Company, Battle Creek, Mich.

nations taken at suitable intervals until the tract was empty. We thus report what we believe to be the largest series of systematic examinations of the passage of a barium sulfate meal through the alimentary tract of healthy young people.

METHOD OF STUDY

The observations reported were conducted chiefly on a group of young medical students who were apparently in good health and of normal bowel habits. Their ages ranged between 20 and 30 years. In addition, we examined a group of twelve women office workers of about the same age.

As the emptying time of normal individuals varies to some degree (variations up to twenty-four hours were noted) we made the control examinations with barium suspension at two separate intervals.

In a group (group 1) of fifty individuals, the following procedure was used: We administered a barium sulfate meal to each of the fifty subjects and, after complete emptying of the initial barium meal, bran was given for one week, 1 ounce (30 Gm.) daily. During the following week, bran plus barium sulfate was given in each case. The emptying time was determined carefully while bran was continued. Then the volunteer was permitted to rest one week. After this rest a barium sulfate meal was given again to all persons in this group as a repeat control and also as a possible means of determination of any subsequent effect of bran on the emptying of the barium.

In a second group (group 2) seventy-six other subjects were used. Barium sulfate was administered to each individual of this group, a gastrointestinal x-ray series was taken and another series was repeated one week later as a control with barium sulfate alone. On the completion of this second control series, bran was given daily to each person for one week. The following week bran plus barium sulfate was given and emptying of the colon was studied (fig. 1).

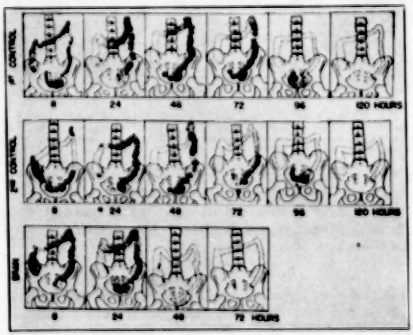

Fig. 1.—Specimen of three gastrointestinal series taken a week apart on the same individual showing bran accelerated evacuation by sixty hours.

We also repeated examinations on eighteen members of group 1 several months later, employing the method used for group 2. The purpose of these repeat examinations was to determine the effect of bran, when given as in group 2, on the movements of the colon of the same individual.

Each gastrointestinal x-ray series was conducted as follows: The subject was given a dose of from 60 to 70 Gm. of barium sulfate in water early in the morning. Following this, roentgenograms were taken at three, eight and twenty-four hour intervals, and then every twenty-four hours until the gastrointestinal tract was empty. During the bran period the subject was given 1 ounce of a commercially prepared bran ("All-Bran") daily for two weeks. In addition, a barium meal was given at the beginning of the following week while bran was continued in order to visualize the effect of the bran.

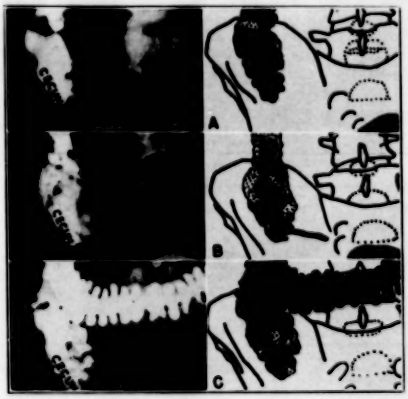

Fig. 2.—Visualization of the appendix in the bran series (*B*). No visualization in the first and second control series (*A* and *C*).

The roentgenograms were made with the subject lying prone (on the abdomen) on a Potter-Bucky horizontal table. The exposures included the abdomen and pelvis thus giving an easy and complete survey of the entire gastrointestinal tract.

An objection may be raised to the use of barium that this substance, though probably quite indifferent to the walls of the intestine, may delay the progress of the contrast meal. Indeed, some persons have spoken of "hardness" of the stools after the ingestion of barium. Barium, however, is not believed to show objectively any marked influence on intestinal movements. To lessen this possible objection we diminished the quantity of barium ingested to 25 to 30 Gm. per individual in one group of cases. We found the rate of progress practically the same as in the other cases. Of course, conditions were maintained constant in the control series and in the bran series within each individual group.

GASTRIC EVACUATION

We have found no significant change in the gastric evacuation time of normal individuals who ingested bran. Nor have we noted any connection between the ingestion of the barium meal and changes in the evacuation of other portions of the alimentary tract while the barium and bran were in the stomach.

SMALL INTESTINE

These studies revealed no obvious changes in the evacuation of the small intestine excepting in one case, in which a highly accelerated emptying of the small

intestine was noted after the use of bran. In this case the contrast medium reached the sigmoid flexure within six hours. It is of interest to note that in this case the total emptying time showed no change from the normal.

CECAL EMPTYING TIME

Bran has relatively little effect on optimal (twenty-four hours) cecal emptying. This occurred in the control series within twenty-four hours in 131 of the first barium tests and in 129 of the second barium tests on 117 patients (92.8 per cent). In the bran series it occurred within twenty-four hours in 141 of 144

TABLE 1.—*Cecal Emptying Time*

	126 Patients (144 Examinations)								
	First Barium Control Test			Second Barium Control Test			Bran Plus Barium Test		
Emptying Time in Hours	No. of Patients	No. of Examinations on Each	Total Examinations	No. of Patients	No. of Examinations on Each	Total Examinations	No. of Patients	No. of Examinations on Each	Total Examinations
24	103[a]	1	103	105[b]	1	105	107[c]	1	107
	14	2	28	12	2	24	17	2	34
48	7[d]	1	7	15[e]	1	15	3[f]	1	3
	3	2	6						
Total			144			144			144

a. One patient several months later showed a twenty-four hour emptying time in the first barium test and a forty-eight hour emptying time in the second barium control test.

b. Six patients several months later showed a twenty-four hour emptying time in the first barium test and a forty-eight hour emptying time in the second barium control test.

c. One patient several months later showed a twenty-four hour emptying time in the first barium test and a forty-eight hour emptying time in the second barium control test.

d. One patient several months later showed a forty-eight hour emptying time in the first barium test and a twenty-four hour emptying time in the second barium control test.

e. Six patients several months later showed a forty-eight hour emptying time in the first barium test and a twenty-four hour emptying time in the second barium control test.

f. One patient several months later showed a forty-eight hour emptying time in the first barium test and a twenty-four hour emptying time in the second barium control test.

TABLE 2.—*Cecal Emptying Time and Total Emptying Time in Seven Cases with Forty-Eight Hour Evacuation in Both Barium Control Tests*

	Emptying Time in Hours					
	First Control Test		Second Control Test		Bran Series	
Case No.	Cecal	Total	Cecal	Total	Cecal	Total
8	48	72	48	96	24	72
15	48	72	48	72	24	72
22	48	72	48	72	24	72
55	48	72	48	72	24	48
95	48	72	48	48	24	48
96	48	120	48	96	48	120
130	48	72	48	72	24	24

examinations in 124 cases (98.4 per cent). A forty-eight hour evacuation time was noted in fourteen cases of the control series; this number was reduced to three instances in the bran series. It was not delayed beyond forty-eight hours in a single case.

We conclude, therefore, that:

1. Bran does not accelerate a twenty-four hour cecal emptying time to any marked degree.

2. It is probably significant, however, that acceleration in cecal emptying time occurred frequently in 78 per cent of the few cases (10 per cent) in which there was a slow (forty-eight hours) cecal evacuation in the control series.

EVACUATION OF THE APPENDIX

We observed a filled appendix in roentgenograms in several cases in the bran series in which the appendix was not visualized in the two preceding control series. This observation is of interest when we recollect that, to be visualized by x-rays, the lumen of the appendix must have been previously emptied by a kind of suction action of the cecum to permit the subsequent entrance of barium. Visualization of the appendix is attempted in a routine manner in some clinics by combined administration of barium and magnesium sulfate. The salt, by "cleaning out" the appendix, gives the barium a chance to get into the appendical lumen and makes it radiopaque. Visualization of the appendix is therefore the result of preliminary suction and emptying followed by filling with contrast medium. If we apply this experience to the evaluation of the visualization of the appendix in the bran series, we believe that bran may aid in emptying the appendix in some cases (fig. 2). This may be of some importance as a possible

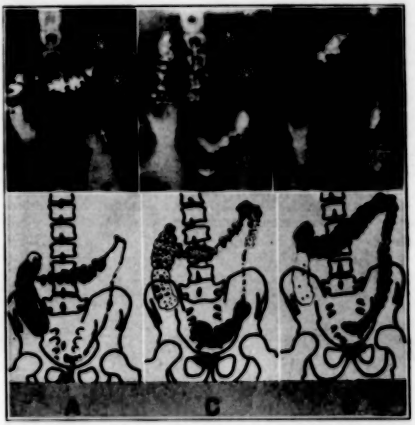

Fig. 3.—Effect of bran on asymptomatic hypertonic bowel: *A*, first control test, twenty-four hours after barium meal. *C*, second control test, twenty-four hours after barium meal. *B*, bran test, twenty-four hours after barium meal.

aid to prevent stasis in the appendix. This theory is somewhat corroborated by the fact that in five cases (approximately one third of those which showed visualization of the appendix after bran) the emptying of the colon was also accelerated.

THE STUDY OF TONUS

Our studies revealed a rather interesting and hitherto unobserved fact regarding the influence of bran on the tonus of the colon. Normally the haustral contractions in the colon are regular and evenly spaced and the haustral sacculations are smoothly outlined. In some individuals hypertonicity may produce significant changes: the shadow of the involved section of the colon is narrower, the haustrations become irregular and are closer together. The reduction of the lumen may be so marked that the narrow portion becomes as thin as a lead pencil.

In thirteen cases of hypertonic haustration (visualized in both control series) we observed definite reactions to bran (fig. 3). All of these cases showed a

decrease of the hypertonic tendency of the haustrations and a remarkable approach toward the normal state.

In these cases neither the cecal nor the total emptying times showed any changes which paralleled the improvement of the spastic condition. In thirteen cases only two were found in which there was well defined accelerated emptying. This relationship is not surprising, since hypertonus has little effect on the propulsion of colonic contents. Conveyance of feces is chiefly the result of so-called mass movements (Holzknecht), which are observed occasionally on fluoroscopic examination. In addition, broad contractions similar to peristaltic waves are also known to aid in the passage of fecal contents. Haustral contractions usually produce churning of the contents and no substantial propulsion, so a decreased tonus is not associated with delayed propulsion.

This observation does not negate the clinical maxim that, in actively i. e. symptom-producing spastic colon, bran is contraindicated, but merely that it may help prevent an attack when taken during the asymptomatic stage.

TABLE 3.—*Total Emptying Time: A Study of 126 Patients (144 Examinations)*

Emptying Time in Hours	First Barium Control Test			Second Barium Control Test			Bran Plus Barium Test		
	No. of Patients	No. of Examinations on Each	Total Examinations	No. of Patients	No. of Examinations on Each	Total Examinations	No. of Patients	No. of Examinations on Each	Total Examinations
24	1	1	1	1[a]	1	1	7	1	1
48	34[b]	1	34	42[e]	1	42	60[k]	1	60
	3	2	6				5	2	10
72	65[c]	1	65	58[f]	1	58	46[l]	1	46
	5	2	10	8	2	16	4	2	8
96	18[d]	1	18	21[g]	1	21	7[m]	1	7
	2	2	4				1	2	2
120	4	1	4	5	1	5	4[n]	1	4
	1	2	2						

a. Showed a seventy-two hour emptying time in the repeat examination several months later.

b. Four patients several months later showed a seventy-two hour emptying time in repeat (second) examination and one patient a ninety-six hour emptying time.

c. Five patients several months later showed a seventy-two hour emptying time and two of them a ninety-six hour emptying time in the repeat examination.

d. Five patients several months later showed a seventy-two hour emptying time in the repeat examination.

e. Four patients several months later showed a forty-eight hour emptying time and two patients an emptying time of ninety-six hours in the repeat examination.

f. Five patients several months later showed a forty-eight hour emptying time, one patient a twenty-four hour, and another a ninety-six hour emptying time in the repeat examination.

g. Five patients several months later showed a forty-eight hour emptying time, one patient a 120 hour emptying time and another patient a ninety-six hour emptying time in the repeat examination.

h. Two patients several months later showed a seventy-two hour emptying time and one patient a forty-eight hour emptying time in the repeat examination.

k. Two patients several months later showed a forty-eight hour emptying time and one patient a seventy-two hour emptying time in the repeat examination.

m. One patient several months later showed a seventy-two hour emptying time and another one a 120 hour emptying time in the repeat examination.

n. One patient several months later had a seventy-two hour emptying time and another a ninety-six hour emptying time in the repeat examination.

TABLE 4.—*Influence of Bran on Total Emptying Time in Normal Individuals: A Detailed Study of Thirty-Five Patients*

Total Emptying Time Without Bran in Hours	Number of Persons Showing Acceleration in the Colon by Bran			
	24 Hours	36 Hours	48 Hours	60 Hours
120	..	..	1	..
120-96	..	1	..	1
96	3	..	2	..
96-72	..	5	..	1
72	16	..	2	..
72-48	..	1	..	..
48	2	..	..	..
126	21	7	5	2
Total	(17.4%)	(5.55%)	(3.96%)	(1.58%)

TOTAL EMPTYING TIME

To evaluate the action of any drug or food on intestinal motility, it is necessary to define the characteristics of total emptying. There exist marked physiologic variations in total emptying times. This is substantiated by such variations frequently noted in our studies of several persons on whom examinations were repeated (table 3) several months later.

Table 4 shows the total emptying time of the colon in normal individuals when accelerated by bran.

The evaluation of the influence of bran on emptying time is based on a comparison of the results with two repeat barium control tests in the same individuals. We disregarded those cases in which there was only one barium control test. Bran was considered to have influenced the emptying time when there was a change of at least twenty-four hours between the bran and the control tests.

In 126 cases only three showed delayed emptying in the bran series. Two of these showed no delay on repeat examinations some months later; therefore this observation must be considered a variation.

ANATOMIC CHANGES

A study of intestinal motility considers anatomic variations which may be congenital, constitutional or acquired in consequence of an operation. We found major variations in thirty-five and minor variations in fourteen "normal" individuals which illustrates the frequency of such variations.

The thirty-five cases contained a group with considerable ptosis, particularly of the transverse colon, with or without a reduplication of the hepatic or splenic flexure. In this group are included cases of mobile cecum and cases of undescended and pelvic cecum. Most of these cases showed prolonged emptying time on control tests. Bran did not alter the emptying time of the latter group. However, ten of twenty-one cases of ptosis of the transverse colon showed accelerated emptying in the bran series.

Fourteen cases showed slight ptosis, reduplication of one or both flexures, and, a few, elongation of the sigmoid. The emptying time of these subjects was also comparatively prolonged. In three cases of slight ptosis bran produced acceleration of the emptying time. No marked delay was noted in cases in which there was reduplication of the hepatic and splenic flexure. In some cases, variations were undoubtedly of temporary character.

CONCLUSIONS

Studies as to the influence of bran on emptying time of the bowel in normal individuals may be summarized as follows:

1. (*a*) Acceleration of the optimal cecal emptying time (twenty-four hours) is evident in but few cases (table 1).

(*b*) Bran accelerates the empting time in most cases which show a forty-eight hour cecal emptying time (table 2).

2. The daily use of bran decreases the total emptying time of about 25 per cent of normal persons. This decrease varies from twenty-four to sixty hours.

3. Bran produces variations in the tonus of the colon. In cases in which hypertonic haustrations are present, a marked reduction of the spasm has been noted after the use of bran.

4. The appendix was visualized in some cases after bran ingestion in which control observations did not show that organ.

COMMENT

From a practical point of view these studies show that bran does not change to any extent the normal sequence of events in the bowel. Bran does not accelerate optimal evacuation of the cecum, but it accelerates evacuation in those cases in which the cecal emptying time is forty-eight hours. This, with appendix visualization in a number of instances in which that organ was not seen in the controls, makes it desirable to make further special studies of the effect of bran on the poorly draining appendix.

Another remarkable fact brought out by this study is that bran seems to relieve the spasm in cases of (probably moderately) spastic colon.

The observation invites a close study of the uses of bran in cases of spastic colon. It is essential to determine in which cases of spastic colon it may be used as a preventive of paroxysms of colic and in which types it should not be used at all.

Clinical Notes, Suggestions and New Instruments

CONGENITAL SYPHILITIC SYRINGOMYELIA WITH ARTHROPATHY OF ELBOW

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Assistant Visiting Neurologist and Visiting Neurologist and Chief of Service, Bellevue Hospital, Respectively

Though it has been recognized for some time that syphilis of the central nervous system may produce a lesion of the syringomyelic cord secondary to pachymeningitis with inflammation of the cord and cavity formation,[1] it is exceedingly rare to find this clinical picture in congenital syphilis. We are therefore reporting a proved case which in addition presented classic syringomyelic arthropathy of the right elbow joint, a combination of conditions we have been unable to find recorded hitherto in the literature.

REPORT OF CASE

J. S., a Negro boy aged 12, admitted to the Bellevue Hospital neurologic wards Nov. 4, 1936, complained of weakness and numbness of the right leg. He had been in good health until August 1936, when, while walking in the street, he suddenly felt his right leg get numb and weak and crumple under him. He was unable to walk without support, and a cast was put on the right leg for about four weeks. A severe yet painless ulceration of the right foot was found when the cast was removed. He was advised to soak the foot in hot water, which he did and sustained a severe burn of the foot, which refused to heal, though the patient recalls that there was no associated pain. He therefore sought help at the Fordham Hospital, where a Wassermann reaction of the blood was reported as 4+ and antisyphilitic treatment was instituted. It was also brought out at this time that his father, brother and one sister likewise gave positive Wassermann reactions and were receiving antisyphilitic treatment. The patient's mother had died of tuberculosis four years previously.

On admission to Bellevue Hospital the patient showed normal mental status for his age, with slightly irregular pupils, which however reacted promptly both to light and in accommodation. The visual fields were not restricted and acuity was 20/20 in

Fig. 1.—Appearance of elbow, showing typical arthropathy.

both eyes. The ocular movements and fundi were normal. There was a loss of sensation of pain, but not of touch or of temperature, over the right side of the face. The muscles of mastication were normal. Hearing was good in both ears. There was no palsy of the palate or tongue. Speech was normal.

There was weakness of all the muscles of the right arm, forearm and hand, with moderate atrophy of the right arm and the interrossei of the right hand. There was a similar wasting of the muscles of the right thigh and calf, with foot drop. The motor power of the left arm and leg were normal.

All the deep reflexes of the right arm and leg were absent, whereas on the left side they were all hyperactive. The Babinski sign was present on the left side; on the right side, owing to the foot drop, no plantar response could be elicited.

Fig. 2.—Appearance of elbow, showing typical arthropathy.

The sensory examination was most interesting in that on the right side, from the third cervical to the sixth dorsal segments, there was complete loss of pain and temperature sensation. In this analgesic belt touch was felt normally, yet hot and cold test tubes could not be distinguished, nor could pain be elicited by pricking with a pin point. There was a similar area in the lower cord, extending from the fifth lumbar to the fourth sacral region on the right side, in which pain and temperature sensation was impaired. The latter area

1. Kennedy, Foster, and Holmes, G.: Two Anomalous Cases of Syringomyelia, Proc. Roy. Soc. Med. 2:1 (Oct. 29) 1908. Schmaus, Hans: Pathologische Anatomie des Ruckenmarks, J. F. Bergmann, Wiesbaden, 1901, p. 504. Oppenheim, H.: Text Book of Nervous Diseases, ed. 7, Berlin, S. Karger, 1923. Nonne, Max: Syphilis und Nervensystem, ed. 3, Berlin, S. Karger, 1924. Jelliffe, S. E., and White, W. A.: Diseases of the Nervous System, ed. 3, Philadelphia, Lea & Febiger, 1929.

included the right half of the penis and anus. Vibratory sense was markedly diminished in the right arm and leg, yet position sense was relatively well preserved, with only an occasional error. On the left side sensation was normal to all modalities except for slight diminution in vibratory sense.

Lumbar puncture was performed and showed an initial pressure of 230 mm. of water and almost complete manometric block. Total protein of the cerebrospinal fluid was 80 mg. per hundred cubic centimeters, there were 21 lymphocytes per cubic millimeter, and the Wassermann reaction of the spinal fluid was negative. The colloidal gold curve was 5555421000. The Wassermann reaction of the blood was negative (it had been 4+ two months previously before treatment had been begun). Roentgenograms of the skull and cervical vertebrae were negative.

Cisternal injection of iodized oil revealed a series of arrests of the medium at levels of the eighth dorsal, tenth dorsal and first lumbar vertebrae. These were interpreted as multiple levels of obstruction at the regions indicated.

The patient was treated intensively with weekly courses of arsphenamine alternating with series of a bismuth compound. There was very little change in the neurologic picture and he was discharged Jan. 5, 1937, to the outpatient department, where further antisyphilitic therapy was carried on.

He persisted faithfully in his treatments for the next eighteen months, and during this period an arthrodesis of the right ankle joint was performed, which partially stabilized this weak foot. At about this time likewise it was noticed that his right elbow was swelling, with limitation of movement yet no pain of this joint. He was therefore readmitted to the service Oct. 18, 1938.

Results of Treatment in Moore's Series

Duration of Treatment	Total Children	During Subsequent Observation Period of at Least Three Years	
		Cured	Not Cured
6 mos. to 1 yr.	66	12	88
More than 1 yr.	198	44	56

On his second admission the neurologic examination gave almost identical results with those on the first admission except that the atrophy of the right hand was more pronounced with typical main en griffe deformity. The right elbow was markedly enlarged (fig. 1) and easily twice the size of the normal left elbow. It felt indurated and irregular; no crepitus could be elicited, and it was completely without pain. Motion was markedly restricted, so that extension could be carried out to only 130 degrees and flexion to about 75 degrees. Roentgenograms of this elbow (fig. 2) showed typical destructive changes as well as osteophytic new growth areas, with disappearance of articular surfaces characteristic of these arthropathies.

The red blood cell count was 4,700,000, with 12.1 Gm. of hemoglobin and 5,200 white blood cells, with a normal differential count. Nonprotein nitrogen of the blood was 32 mg., and blood sugar 60 mg. per hundred cubic centimeters. Lumbar puncture was again performed and showed considerable delay in the fall, following a rapid and adequate rise on jugular compression, which again was indicative of partial manometric block. The total protein of the spinal fluid was 65 mg. per hundred cubic centimeters, Pandy's test 34 seconds, colloidal gold curve 5555431000, the chloride content 693 mg. There were 12 lymphocytes per cubic millimeter. Wassermann reactions of the blood and spinal fluid were negative.

Roentgenograms of the skull and cervical thoracic and lumbar spines were negative. The heart was not enlarged nor was the shape characteristic of valvular disease. There was no disease of the lungs on either physical or x-ray examination.

The clinical impression was congenital syphilis of the spinal cord with pachymeningitis and partial "strangulation" of the cord, secondary softening and syringomyelic cavity formation in the cervicodorsal and lumbar regions and arthropathy of the right elbow joint. Vigorous antisyphilitic treatment was continued (a bismuth compound and arsphenamine), with complete arrest of the syphilitic process at the time of this report (June 1939).

COMMENT

It is generally thought that neurosyphilis of various clinical types is less frequent in congenital than in late acquired syphilis. Moore [2] states that approximately 15 per cent of patients with congenital syphilis develop lesions of the central nervous system, and it is known that among the patients with congenital syphilis over 2 years of age the percentage of positive Wassermann reactions of the spinal fluid was about 29 per cent.[3] In young adults with congenital syphilis the nervous system is involved in only about 5 per cent and asymptomatic neurosyphilis is uncommon. These facts can be understood more readily when it is realized that the death rate from neurosyphilis in childhood is much higher than that of the other forms of congenital syphilis. This causes a progressive decline in the incidence at the older and adolescent ages, so that only a few children with neurosyphilis reach adult life. Strangely enough, Negroes are more amenable to treatment in this type of syphilis

Fig. 3.—Patient, Nov. 29, 1938, at 14 years of age, showing arthropathy of right elbow and main en griffe of right hand.

than are white patients.[2] Moore recommends neoarsphenamine and a bismuth compound rather than tryparsamide in these patients and in the accompanying table gives a summary of the results of such treatments in his series.

It is seen, therefore, that the outlook may be far from hopeless, though it is generally agreed that therapeutic results are far less satisfactory in congenital than in acquired neurosyphilis.

Moore has likewise pointed out that congenital neurosyphilis usually occurs in cases in which early infantile lesions were absent or minimal, and this observation was corroborated in the case reported in this paper.

SUMMARY

1. Proved cases of congenital syphilis of the spinal cord with syringomyelic dissociation and arthropathy of the elbow joint are extremely rare.

2. It is felt that the cavitations in the cord were secondary to meningomyelitis with pachymeningitic "strangulation" and secondary softening of cord substance.

3. Intensive antisyphilitic therapy over a period of three years resulted in complete arrest of the process.

140 East Fifty-Fourth Street.

2. Moore, J. E.: The Modern Treatment of Syphilis, Springfield, Ill., and Baltimore, Charles C. Thomas, 1933.
3. Ford, F. R.: Diseases of the Nervous System in Infancy, Childhood and Adolescence, Charles C. Thomas, Publisher, 1937.

CUTANEOUS MUCOR INFECTION OF THE FACE

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AND
A. R. K. MATTHEWS, M.D., ROCKFORD, ILL.

Recently we [1] reported an unusual case of Sporothrix invasion of the breast of a woman, with rather striking therapeutic results. The case which we are recording here is of sufficient rarity to warrant a detailed anamnestic, clinical and pathologic survey. We have been unable to find any other reported examples of cutaneous involvement with the Mucor type of fungus and believe this to be a pioneer case, although not all the European literature was available.

Fig. 1.—Side view of both lesions as they appeared before any diagnostic procedures were begun.

G. B., an unmarried white youth aged 17, was first seen by one of us (J. L. W.) in the office March 31, 1939. He complained of a "boil" on the right cheek of two weeks' duration. This had appeared first as a small red papule about the size of a pinhead. It had not been painful, it had slowly grown larger, and there had been some exudation of serum from the surface of the lesion. The patient had been tending live stock on a farm and had noticed a "growth" on the noses of several sheep under his care. It was shortly after he had seen these growths that the papule appeared on his right cheek. It could not be definitely established that he had cut himself while shaving or had otherwise abraded his face. (It is entirely possible that this did occur.) He used a shaving brush that he had had for more than two years. Approximately ten days after the first papule appeared another small lump was noted near the first; it had grown slowly. There had been no itching at any time; the lesion had slowly progressed, and the top had taken on a red, "angry" appearance with some bloody serous exudation. A small "gland" became enlarged under the lobe of the right ear; it was not painful or tender. There were no constitutional symptoms, and no other lesions had made their appearance.

Fig. 2.—Close view to show papillomatous nature of larger lesion.

The past medical history, familial history and general systemic review were noncontributory.

The general physical examination, aside from the cutaneous and glandular lesions to be described, showed no abnormality. On the right cheek, 2 inches (5 cm.) lateral to the angle of the mouth and on a line with the upper lip, were two lesions (fig. 1). The larger lesion was approximately round and 2 cm. in diameter; it presented an appearance of dark red jelly-like papillomatous tissue from which exuded a small quantity of serosanguineous fluid (fig. 2). The smaller lesion, the size of a split pea, was likewise raised, and reddish, but showed a smooth surface with no "weeping." There was no induration, redness or tenderness about either lesion (fig. 2). Beneath the lobe of the left ear and just below the mandibular ramus (fig. 1) was a moderately enlarged, hard, nontender movable mass about the size of an almond. No other cervical or submaxillary nodes could be felt. There was no general lymphadenopathy; the pulmonary fields were normal to physical examination; the spleen could not be felt.

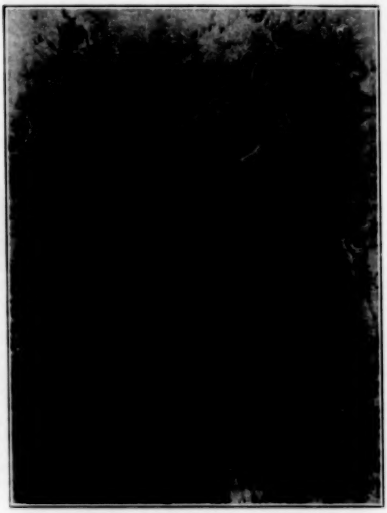

Fig. 3.—Microscopic view of fungous growth.

The granulomatous noninflammatory lesion aroused the suspicion of one of us (J. L. W.), and smears from the larger lesion were examined in the office. These stained smears showed numerous staphylococci, but no fungi, spores or filaments could be found. Dark field examination yielded negative results. A tentative diagnosis of fungous infection was made and the patient was referred to the laboratory for smear, cultures and biopsy. One of us (A. R. K. M.) performed these diagnostic procedures, the results of which were as follows:

Laboratory investigations consisted of smears and cultures of exudate, and mounts and cultures of small pieces of tissue removed from the lesion.

The exudate showed many pus cells and numerous staphylococci, but no fungus spores were identified though it is recognized that they may have been overlooked or regarded as leukocytes. Tissue teased and mounted in potassium hydroxide showed oval structures considered to be spore bodies, but evidence of branching or of mycelium was not demonstrated.

1. Wade, James L., and Matthews, A. R. K.: Bilateral Sporotrichosis of Breast, Arch. Int. Med. 61:916-922 (June) 1938.

Cultures of the tissue and of the exudate were made with Sabouraud's agar both by surface inoculation and by pour plates. In each instance a fluffy white rapidly increasing growth was obtained. This penetrated the mediums in all directions and sent out aerial filaments. Microscopic examination revealed a fungus of the Mucoraceae family with typical chlamydospores and sporangia (fig. 3). No attempt to subclassify the growth was made. No other fungi appeared in the cultures. It seems unlikely that such cultures could have been obtained accidentally, and we believe that the evidence established Mucor as the causative organism of these cutaneous lesions.

TREATMENT

After laboratory procedures had confirmed the tentative clinical impression and had identified the causative organism, treatment was begun. Since no specific or definite therapeutic agent could be discovered in the literature or textbooks, it was decided to use the iodides, rather empirically, it is admitted. Sodium iodide in doses of 1 Gm. was given intravenously every third day, and the patient was instructed to take potassium iodide by mouth beginning with five drops three times a day and increasing one drop a day until fifteen drops was being taken three times a day. After the second parenteral treatment there was a definite regression in the size and color of the lesion and at the end of twenty-four days the lesions had healed completely, leaving no scarring. The lymphadenopathy beneath the right ear likewise disappeared, and when last seen, May 16, the patient considered himself cured and had discontinued his oral medication. At no time were there signs or symptoms of iodism.

COMMENT

The fact that we have found and identified the causative organism in two rather unusual cutaneous lesions, both within a comparatively short time, should serve to increase the clinical awareness among the profession of the possibility of such disease. The iodides seem (in these two cases at least) to exert almost a specific effect.

816½ Market Street.

COMPLETE ANURIA DUE TO CRYSTALLINE CONCRETIONS FOLLOWING THE USE OF SULFAPYRIDINE IN PNEUMONIA

GRAYSON CARROLL, M.D.; JOHN SHEA, M.D., AND GEORGE PIKE, M.D., ST. LOUIS

Sulfapyridine is being so widely used, it is imperative that physicians have knowledge of the possible complications which may occur during its administration. We are reporting a most instructive case which clinically bears out in all details the animal experiments reported by Antopol and Robinson[1] Gross, Cooper and Lewis[2] and the unpublished work of Lloyd R. Jones, professor of bacteriology at St. Louis University. All the investigators report the presence of concretions in the urinary tracts of animals within forty-eight hours after administration of sulfapyridine.

Tsao[3] reports a number of cases of hematuria following the use of sulfapyridine and ascribes the death of a child to crystalline concretions forming at the ureterovesical orifices which completely blocked the ureters and resulted in anuria which caused the death of the patient. He states that a urologist's assistance may have prevented the death of the child.

REPORT OF CASE

R. W., a white man aged 42, was admitted to the medical service of the St. Louis City Hospital Oct. 22, 1939, complaining of having had a cold for the previous three weeks. On the day prior to admission he began having intermittent chills, hiccups and pain in the chest. The pain was accentuated on coughing and deep respiration. The past history was essentially negative except for an appendectomy in 1930 and malaria in 1933.

On admission the patient, who was well developed and well nourished, was shaking violently and appeared acutely ill. His

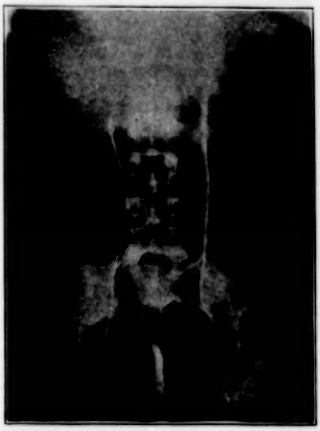

Fig. 1.—Attempted pyelogram showing filling defect of both pelves and calices except the lower right calix; injected opaque solution seen in the ureters only.

temperature was 100.4 F., his pulse was 100 and respirations were 24 and shallow. The nasal passages were obstructed, the throat was red and a postnasal drip was present. The breath

Fig. 2.—Pyelogram showing both kidneys and calices completely filled following the lavage of acetylsulfapyridine crystals.

sounds were depressed over the left base but otherwise no changes were noted. The heart and the abdomen were normal. The blood pressure was 110 systolic, 75 diastolic.

Laboratory studies revealed red blood cells, 3,770,000 and white blood cells 5,600, with 58 per cent segmented forms, 24 per cent stab forms, 17 per cent lymphocytes and 1 per cent

From the St. Louis City Hospital, Department of Urology and Medicine of the St. Louis University School of Medicine.

1. Antopol, William, and Robinson, H.: Proc. Soc. Exper. Biol. & Med. **40**: 428 (March) 1939.
2. Gross, Paul; Cooper, F. B., and Lewis, Marion: The Fate of Urinary Calculi Caused by the Administration of Sulfapyridine, Urol. & Cutan. Rev. **43**: 439 (July) 1939.
3. Tsao, Y. F.: Renal Complications in Sulfapyridine Therapy, J. A. M. A. **113**: 1316 (Sept. 30) 1939.

mononuclears. No malarial parasites were found. A catheterized specimen of urine showed acid reaction, specific gravity 1.035, and no sugar or albumin. There were no red blood cells. The Kahn reaction was negative. Blood sugar was 87 mg. per hundred cubic centimeters and nonprotein nitrogen 18. Blood culture was negative. The sputum showed type VIII pneumococci.

A chest plate showed a pneumonic infiltration at the left base.

On the day of admission the patient was given sulfapyridine: 15 grains (1 Gm.) every hour for four doses and 15 grains every four hours thereafter.

On the day following admission the temperature reached normal and remained so. October 24 the red blood cells were 4,810,000 and the white blood cells 7,300.

October 26, after four days of sulfapyridine administration, the patient had gross hematuria and began to complain of abdominal cramps and pain in both lumbar areas. The abdomen was soft, with slight bilateral costovertebral tenderness. Sulfapyridine was discontinued. The output for the following twenty-four hours was only 100 cc. of bright red blood in spite of the administration of intravenous fluids. The patient vomited frequently.

October 28 the urinary output was nil and the nonprotein nitrogen was 53. The patient was seen by one of us (Shea), who advised immediate cystoscopy. This was performed under local anesthesia, with the following results: The bladder mucous membranes were congested throughout and several small, white, irregular, soft concretions were found on the floor of the bladder. These readily dissolved in warm water. A similar concretion was seen protruding from the left ureteral orifice, and both orifices appeared lacerated. No. 6 French catheters were passed for 26 cm. on each side. A gritty sensation was experienced on both sides during the passage of the catheters. No drip was obtained on the right side, and a slow blood-tinged drip was obtained on the left. A roentgenogram was taken, which showed no opaque shadows. A pyelogram (fig. 1) showed a complete filling defect in the pelvis of the right kidney with only a small amount of the dye apparent in the upper calix, the major portion of the dye appearing alongside the right catheter. On the left side no dye was seen in the renal pelvis or calices, but some appeared around the catheter, as on the right side. The No. 6 French catheters were withdrawn and No. 8's passed on both sides; the renal pelves were thoroughly lavaged with warm distilled water. Following this a rapid, clear urinary drip was obtained on both sides. A subsequent pyelogram (fig. 2) showed normal renal pelves except for a small filling defect in the right pelvis.

The patient showed immediate clinical improvement. The urinary output returned to normal following cystoscopy, and the nonprotein nitrogen estimated October 30 was 27. The urine at this time continues to show from 10 to 15 red blood cells and from 2 to 3 white blood cells per high power field.

CONCLUSIONS

1. The supersaturation of acetylsulfapyridine crystals during the administration of sulfapyridine is sufficient at times to cause a complete obstruction in the urinary tract.

2. This condition can be promptly and satisfactorily relieved by cystoscopically inserting catheters in the ureters and pelves, and lavage with warm physiologic solution of sodium chloride or sterile water.

3. These crystals, even in large amounts, which cause obstruction, are not opaque to the x-rays; therefore a flat roentgenogram is of no value. The symptoms of kidney colic and/or hematuria should make one suspicious of crystalline concretions in the urinary tract and should not be mistaken for gastric upsets.

4. The hematuria noted clinically is probably the result of minute traumatism of the mucous membranes by the crystals rather than damage to the renal parenchyma and therefore is of no grave consequence.

5. The forcing of fluids in conjunction with sulfapyridine therapy is probably appropriate, since it will relieve the supersaturation of the urine to some extent.

6. It incidentally suggests that supersaturation of any form of crystals in the urine may result in calculous formation, thus giving added value to the work of Rubin Flocks[4] in calcium metabolism.

7. Death of our patient was prevented apparently by the cystoscopic manipulation, thus warranting this prompt report.

This case demonstrates the wisdom expressed in the editorial on sulfapyridine in THE JOURNAL of Feb. 11, 1939; also the preliminary report of the Council in the same issue, in which it states that the Council "feels that in the light of available evidence the general use of the drug does not seem to be warranted at the present time. The Council feels that, because of the definitely experimental status of the drug, it should be used only by properly qualified persons for investigations of its value."

We feel however that final acceptance of the drug by the Council is well warranted, since the drug has been demonstrated to have definite value and the complications can be satisfactorily treated when encountered.

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DAVIS INHALATOR ACCEPTABLE

Manufacturer: Davis Emergency Equipment Company, Inc., 55 Van Dam Street, New York.

The Davis Inhalator is a portable resuscitation apparatus designed for the administration of a mixture of oxygen and carbon dioxide in cases of asphyxia. The device was first accepted in 1930 (THE JOURNAL, July 19, 1930, p. 200). Changes made since then are as follows: 1. Two 16 cubic foot tanks are now in the case instead of one. 2. The pressure reducing valve has been changed to the diaphragm type. 3. The valve is no longer anchored to the case and so may be removed with the two small cylinders and a 50 cubic foot cylinder attached to one side of the valve in place of one of the 16 cubic foot cylinders.

Davis inhalator.

Standard cylinders provided contain 7 per cent carbon dioxide. There is a pressure gage indicating the content of the cylinder in pressure and also in percentage of its original filling. The operator is supposed to use one cylinder until it is empty, when a change can quickly be made to the other. Besides the pressure gage there is a flow meter indicating the rate of flow in liters per minute. It is marked from 10 to 20 liters per minute for one patient and from 20 to 35 liters per minute for two patients. Attachments for three face masks and breathing tubes to the removable breathing bag are also provided. A canvas kit is furnished containing a taper screw device for forcing open the jaw, a mouth gag and a tongue forceps.

The oxygen and gases pass from the pressure reducing valve into the breathing bag, which is connected with a hose leading to the face mask. The gases are delivered to the face piece at a pressure slightly above atmospheric pressure. The air exhaled into the face mask passes into an exhale valve, with a check valve to prevent any of the exhaled air from passing back into the breathing circuit.

The investigation of the Council revealed that this inhalator compared favorably with other accepted inhalators on the market.

In view of the foregoing report, the Council on Physical Therapy voted to accept the Davis Inhalator for inclusion on the Council's list of accepted devices.

4. Flocks, R. H.: Calcium and Phosphorus Excretion in the Urine of Patients with Renal or Ureteral Calculi, J. A. M. A. **113**:1466-1471 (Oct. 14) 1939.

MAICOPHONE HEARING AID ACCEPTABLE

Manufacturer: The Maico Company, 83 South Ninth Street, Minneapolis.

The hearing aid instrument known as the Maicophone consists of a light metal housing of disk form measuring approximately 3⅜ inches in diameter and 1 inch thickness. The microphone is located behind perforations in the front of the case, and the vacuum tube amplifier is included within the case. At spaced intervals around the periphery of the case are located an off-on switch, a volume control disk and connections for the receiver and battery. On the back of the case is riveted a spring clip for fastening the case to the wearer's clothes. The weight of the unit is approximately 26½ ounces.

Maicophone hearing aid.

The battery case houses a removable frame for holding and making connection to a two cell battery for filament supply current, and a 45 volt battery for plate current supply. The battery measures 5½ inches long by 3¼ inches wide by 1⅛ inches deep. The weight with the batteries is 18½ ounces.

The receiver is of the watch case type, is supported by a head band and contains an opening intended to be opposed to the auditory canal of the user's ear. The diameter of the receiver is approximately 2⅜ inches and the thickness five-eighths inch. The weight is 2½ ounces.

The investigations conducted on the Maicophone were (1) pure tone, single frequency response tests, (2) intelligibility and articulation tests, (3) speech amplification tests and (4) tests to determine the battery current consumption.

1. *Pure Tone Response Characteristics.*—The microphone was placed in a chamber free from reflections, and pure tones were generated by a loud speaker. The sound output of the hearing aid with the volume control in the maximum output position was then compared by ear with that of a standard calibrated microphone-amplifier-receiver. The sound intensity level within the chamber was regulated at each frequency so as to provide an output tone having a comfortable loudness. Preliminary tests indicated that the response with increasing loudness was substantially linear, thus validating the procedure outlined.

Trend of Amplification

Frequency	Relative Intensity, Decibels
200	5
1,000	20
3,200	35
4,700	30
5,100	25
5,400	?

It was found that amplification started at about 300 cycles per second and gradually increased with frequency up to 3,200 cycles, thereafter gradually decreasing to 5,100 cycles, after which came a rather sharp cut-off. The accompanying table indicates the trend.

No sharp peaks or valleys of amplification were observed. Also the character of the response was judged to be comparatively free from nonlinear distortion.

2. *Intelligibility and Articulation Tests.*—These were performed by the Fletcher-Steinberg technic. The results obtained on one instrument were as follows: Consonant articulation 100 per cent, vowel articulation 96 per cent and syllable articulation 96 per cent. Intelligibility for discrete sentences was 100 per cent. These results vary slightly from set to set, and from speaker to speaker and listener to listener.

3. *Speech Amplification Tests.*—The amplifying power was determined by introducing an electrical insertion loss between the hearing aid amplifier and the receiver of such a character as to insure normal electrical conditions of operation of the amplifier, and by comparing the speech as heard directly with one ear with that heard through the amplifying system with one ear. When these two sounds were judged to be equal in loudness, the insertion loss introduced was taken as the amplifying power of the device. It should be particularly noticed that the two sounds which must be brought to equal loudness differ in quality. Accordingly the figure for amplification which was obtained can mean no more than a balance in loudness between sounds of different character. For vacuum tube amplifier hearing aids of high quality, the useful amplification may be higher or lower in accordance with the type of hearing loss which the aid is intended to correct. Evidently the Maicophone unit submitted for test is best suited to correct perceptive hearing loss since, as may be seen from the pure tone response characteristics, the higher frequencies are amplified more strongly than the lower ones. In any event the test for speech amplification as described gave a loudness amplification of 30 ± decibels.

4. *Battery Consumption.*—Direct measurement gave the following values: new 1½ cell (A battery), 150 milliamperes; new 45 volt battery (B battery), 0.7 milliampere. Current consumption was not affected by altering the position of the intensity control of the amplifier. The Maicophone is neat in appearance and seems to be well built. It provides a high degree of speech clarity. Battery consumption is high, but this is unavoidable in the present state of the hearing aid science.

In view of the foregoing report, the Council on Physical Therapy voted to accept the Maicophone for inclusion on the Council's list of accepted devices.

ANERON ACCEPTABLE

Manufacturer: Sutherland Manufacturing Company, Inc., 1420 New York Avenue N.W., Washington, D. C.

The Aneron is a unit devised to produce local hyperemia by means of negative pressure created within cups applied to the surface of the body. The assembly includes a vacuum pump housed in a metal cabinet, with flexible tubing to be attached to the cups.

There are eleven cups of various sizes and shapes to fit body contours. The smallest cup is made of glass, while the others are of metal with rubber rims. Valves are provided for reducing the vacuum in all the cups except the single glass one, which has simply an aperture on the side for controlling the vacuum with the operator's fingers.

The Aneron.

A pump creates the vacuum via the tubing leading to the valves at the top of the cups. When a high vacuum is not desired, a regulating check valve attached in the vacuum line may be used.

The unit was investigated in a clinic acceptable to the Council. It was found to be a rather elaborate mechanism for producing local hyperemia by a method similar to the methods used in conventional cupping technics. When suction is applied, the air is partially evacuated from the cup, lifting the underlying soft tissue and producing a local hyperemia. In the opinion of the Council, the apparatus has a limited therapeutic usefulness and little more can be expected from it than can be achieved by the conventional cupping methods. It is true that the technic with an alcohol flame, although effective, involves a danger of fire. Rubber bulb cups are usually less effective. The Council points out that the Aneron is indicated for use in conjunction with other methods of treatment.

In view of the foregoing report, the Council on Physical Therapy voted to include the Aneron in the Council's list of accepted devices.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, FEBRUARY 3, 1940

THE PLATFORM OF THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association advocates:

1. The establishment of an agency of the federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy.

2. The allotment of such funds as the Congress may make available to any state in actual need, for the prevention of disease, the promotion of health and the care of the sick on proof of such need.

3. The principle that the care of the public health and the provision of medical service to the sick is primarily a local responsibility.

4. The development of a mechanism for meeting the needs of expansion of preventive medical services with local determination of needs and local control of administration.

5. The extension of medical care for the indigent and the medically indigent with local determination of needs and local control of administration.

6. In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established.

7. The continued development of the private practice of medicine, subject to such changes as may be necessary to maintain the quality of medical services and to increase their availability.

8. Expansion of public health and medical services consistent with the American system of democracy.

THE NEW YORK SESSION—1940

Plans are well under way for one of the greatest annual sessions of the American Medical Association ever held in its history. This session is scheduled to take place in New York City June 10-14 inclusive. The meeting places of the various sections will involve the use of the Waldorf-Astoria, the Commodore, the Roosevelt and the Biltmore hotels; registration of Fellows and all the exhibits will be in the Grand Central Palace. The opening meeting will be held in one of the large assembly halls in the same area of New York.

Among some of the special scientific features planned for the New York session will be a panel discussion on the uses and abuses of sulfanilamide and its derivatives. In the General Scientific Meetings special attention will be given to such topics as management of the failing heart, nutrition of the nation, the psychologic aspects of physical disease, new research in technics related to obstetrics, the sympathetic nervous system, varicose veins and the venereal diseases.

The number of applications for places on the programs of the various sections are so considerable in number as to throw a burden on the officials of the various sections who must arrange the programs. In the sections special attention is to be given to new problems in the field of immunology, industrial medicine and cancer.

Announcement has already been made officially that the World's Fair will be continued through 1940. Thus physicians who plan to attend the annual session of the American Medical Association may well plan at the same time to spend a number of days before or after the meeting in attendance on the fair. Hotel reservations should be made accordingly, keeping in mind the duration of the stay planned. Efforts are being made to provide for special consideration to be given to physicians and their families in relation to visiting some of those features of the fair which have attracted the greatest crowds; also special consideration will be given to physicians in the Hall of Science and Health.

Notwithstanding the vast hotel facilities of New York there is no doubt that the accommodations available in the large hotels nearest to the Grand Central Palace will be taxed to the utmost. It is important, therefore, that physicians plan as soon as possible to communicate with the office in New York which is making reservations for physicians in order to assure themselves of adequate accommodations for themselves and their families. These requests should be addressed to Dr. Peter Irving, Chairman of the Subcommittee on Hotels, Room 1036, 233 Broadway, New York City. In THE JOURNAL for December 16, 1939, a list of hotels with rates for various accommodations appears on advertising page 32.

From time to time special features of the New York session will be announced in THE JOURNAL, and early in May a special convention number will be issued in which the preliminary program will be presented as well as further information concerning many of the special features which New York will offer.

HEALTH OF THE YOUTH OF THE NATION

Elsewhere in this issue appear the recommendations of the American Youth Commission of the American Council on Education as far as they relate to the health of our young people. Strangely, in this document, as well as in several others that have recently been published, a number of statements alleged to be scientific are accepted at their face value without due regard for fact. Thus it is said that one third of the men drafted for the army in 1918 were physically unfit for such service and presumably handicapped to a greater or less extent even for civilian life. Notwithstanding this statement, it is generally recognized that the fitness of the American nation is up to that of most of the other civilized nations of the world. In a selection for army service certain considerations must be taken into

account so far as relates to eyesight, flatfoot and similar disabilities which have little or no effect on the functional capacity of the individual in civilian life.

The statement is made that youth who were disabled for a week or more during 1936 by tuberculosis, pneumonia, appendicitis or childbirth failed to receive hospital treatment to the extent of 30 per cent. Is there any evidence that all such cases should be hospitalized? Indeed, there is some question that all cases of childbirth should be hospitalized. Moreover, our rates for tuberculosis are steadily declining and in certain institutions there is already an oversupply of available beds for that disease. One wonders also how cases of childbirth fit into the youth program.

It will be observed that this report is essentially propaganda for a national health program and that the statement follows the pattern of some of the other pieces of propaganda that have emanated from that small group in Washington which has been endeavoring now for some years to fix on the nation its own concept, which demands revolution in medical care. It is amazing to find this stereotyped statement repeated again and again in the literature of welfare groups, which apparently unthinkingly copy from previous documents what is essentially propaganda rather than science. Indeed, the President himself has already intimated on several occasions that the so-called National Health Program and the Wagner Health Bill (which endeavors to translate that program into action) must be considered as cumbersome, extravagant and even grandiose.

No one would wish, more than the medical profession, to do the utmost that can be done to increase the health of American youth; in our approach to the problem we should base our opinions on scientific fact and avoid being enmeshed in the promotional literature of the propagandists.

OVARIAN PREPARATIONS

In the past few years a number of pure chemical compounds simulating endocrine preparations have been developed and found to possess potency in duplicating the physiologic reactions of the endocrine glands themselves. In spite of this progress there still appears to be a profitable sale for some products prepared from animal glands which have little, if any, demonstrable activity. These so-called endocrine preparations are often sold under proprietary names. Usually they contain a few grains of one or more of desiccated ovary, testis, corpus luteum, anterior lobe or thymus. Except for the thyroid and perhaps posterior pituitary, products derived from a few grains of desiccated glandular material have never been proved to be effective in endocrine therapy.

The Council on Pharmacy and Chemistry has repeatedly exposed such obsolete preparations as worthless and has warned the medical profession against the insidious advertising and sales policies of those firms which promote them. Now it is gratifying to learn that the Food and Drug Administration has ruled against one type of these unscientific remedies:

NOTICE TO MANUFACTURERS OF PREPARATIONS OF OVARY:

There are on the market drug products in liquid form designated as "Ovarian Extract" or by some similar title. In some instances these products have been found not to contain the known therapeutically and physiologically active constituents of ovary, namely, those having estrogenic and progestational activities. The Food and Drug Administration is of the opinion that such inert or essentially inert preparations when sold as "Ovarian Extract," or under any other designation or under labeling which states or implies that such active principles are present, are both adulterated and misbranded as those terms are defined in the Federal Food, Drug and Cosmetic Act.

Numerous other "gland" products, relics from the ancient endocrine armamentarium, deserve similar condemnation.

TESTS FOR ALCOHOLIC INTOXICATION

The Committee on Tests for Intoxication of the National Safety Council, Chicago, has just released its 1939 report,[1] supplementing the report it issued in 1938.[2] These reports may well serve as a guide for any one interested in tests to determine whether or not a person is under the influence of alcohol. The committee recommends, among other things, that chemical tests of body fluids or breath, any one of which is satisfactory if properly performed, be used in all cases, civil or criminal, in which influence of alcoholic liquor is suspected; that ultimately each state adopt a statewide system of standardized laboratories, preferably approved by state departments or courts, to test chemically for influence of alcohol; that each state consider adoption of legislation, as Indiana[3] and Maine[4] have already done, dealing with the use of evidence obtained from chemical tests, and that legal definitions in state laws of the phrase "under the influence," which is to be preferred to the term "intoxicated," be made more uniform. The committee is in accord with the interpretation of chemical tests for alcoholic intoxication recommended by the Committee to Study Problems of Motor Vehicle Accidents of the American Medical Association and adopted by the House of Delegates,[5] namely that (1) a person with a concentration of less than 0.05 per cent by weight in the blood or its equivalent in urine, saliva or breath should not be prosecuted for driving while under the influence of alcoholic liquor; (2) a person with a concentration above 0.15 per cent should be considered as under such influence, and (3) a person with a concentration between 0.05 and 0.15 per cent should be prosecuted only when the circumstances

1. Installing Tests for Intoxication, 1939 Report of the Committee on Tests for Intoxication, National Safety Council, Chicago, read before the twenty-eighth National Safety Congress and Exposition, Atlantic City, N. J., Oct. 17, 1939.
2. Porter, H. H.: Chemical Tests for Intoxication, 1938 Report of the Committee on Tests for Intoxication, National Safety Council, Chicago, read before the Silver Jubilee Safety Congress and Exposition, Chicago, Oct. 12, 1938.
3. Laws of Indiana, 1939, ch. 48, art. V, sec. 54, paragraph (2).
4. Public Laws of Maine, 1939, ch. 273.
5. Proceedings, House of Delegates, American Medical Association, 1939, J. A. M. A. 113: 2164-2166, 2175 (May 27) 1939.

and results of physical examination give definite confirmation that he is under the influence of alcohol. Any physician or other qualified person intending to perform chemical tests for alcoholic intoxication should acquaint himself with the legal phases of this problem, especially with regard to obtaining specimens without consent or by compulsion, as discussed in these reports [6] and elsewhere.[7]

In setting up a testing program for dealing with drinking drivers of motor vehicles, the Committee on Tests for Intoxication believes certain requirements essential: (1) a special examination conducted by properly trained enforcement officers at the scene of the accident or violation and the results recorded on a special examination report form, preferably the Alcoholic Influence Report Form prepared by the National Safety Council; (2) chemical tests of body fluids or breath, by physicians, chemists or other qualified persons; (3) medical examinations especially in cases involving injury after accident or complaint of illness, and (4) proper preparation of the evidence for presentation in court by a physician or other person qualified by study or experience to give expert testimony in court when needed. The committee stresses the importance in such a program of developing the interest, understanding and cooperation of both the enforcement officials and the public.

Cooperative efforts of the various interested organizations should lead eventually to a substantial decrease in the number of unnecessary deaths attributed to drunken drivers.

Current Comment

NORMAN BAKER CONVICTED

On January 23 a jury found Norman Baker, notorious promoter of a cancer cure, guilty of using the United States mails to defraud. He and several of his associates were found guilty by a jury after one hour and thirty-nine minutes of deliberation. This is the same Norman Baker who promoted the old Hoxsey nostrum and who claimed that the American Medical Association had offered him a million dollars for his cancer cure. This is the Norman Baker who has constantly claimed that he was being persecuted by the American Medical Association. It is the same Baker who was ordered off the air with his station at Muscatine, Iowa, in June 1931, following publication of an article in THE JOURNAL exposing the manner in which that station was being used to entice sufferers from cancer to Muscatine. This is the Norman Baker who sued the American Medical Association for libel and who lost the verdict when the Association refused to retract and fought him in the courts. This is the Baker who established a radio station in Mexico, known as XENT, from which during many months he abused and vilified and condemned the physicians of this country. Eventually Baker went to Arkansas and took over a defunct springs resort, where he set up an institution for the treatment of cancer. In his trial the chief defense offered included statements from some persons who testified that he and his associates had acted in good faith in advertising cures for cancer and other diseases through the mails and over the radio. Among the experts who testified on behalf of established medical science were Dr. Francis Carter Wood, of New York, and Dr. Max Cutler, of Chicago, who gave freely of their time and of their knowledge to the government. Following conviction by the jury, Baker was sentenced to four years' incarceration and fined $4,000. A motion for a new trial was denied. The response of the jury and of the public in this case should encourage the Post Office Department to extend more widely and more vigorously its powers for the protection of the people against charlatanism in the treatment of disease.

PROFESSIONS THAT TEST OCULAR REFRACTION

Thacker [1] has recently analyzed 1,416 students at the University of Illinois divided into those whose vision was not normal with glasses examined within the last year by ophthalmologist or optometrist, those having incorrect vision with glasses not examined within the previous year, and the total number of students with incorrect vision. This study revealed in brief that 37.8 per cent of those examined by the optometrist and 19 per cent of those examined by the ophthalmologist did not have normal vision with glasses as determined by the Snellen test. There remained 32.3 per cent of those examined by the optometrist and 6.7 of those studied by the ophthalmologist who had defective vision with glasses. It was also found that practically three fourths of the students were unable to differentiate the ophthalmologist from the optometrist. Moreover, the average cost of the ocular examination and glasses was only about 10 per cent greater in the ophthalmologist group than in the optometrist group. It is concluded by Thacker that there is need for better medical regulations to determine the efficiency, registration and licensure of physicians representing themselves as specialists. He also points out that several of the schools of optometry which have raised their requirements to a four year course are attempting to teach pathology and diagnosis. In the light of existing circumstances, however, it would seem that much of this teaching is "futile." Eventually, he says, if the practice of optometry is to continue in the direction it is now taking, medical schools may find it necessary to absorb the teaching and control of the practice of this profession. Otherwise, when and if the professional standards and ethics for the practice of optometry reach a higher plane, the same cooperation as exists between the practice of medicine and dentistry may develop between the medical and optometry professions. Standards reached by the optometry profession, however, are apparently still far below those which would justify the confidence of the public or medical profession.

6. 1938 Report, supra, pp. 18-21; 1939 Report, supra, pp. 15-16.
7. Ladd, Mason, and Gibson, Robert W.: The Medico-Legal Aspects of the Blood Test to Determine Intoxication, Iowa Law Review, January 1939, pp. 193-267; "Scientific Gadgets in the Law of Evidence," Note, Harvard Law Review, December 1939, pp. 288-291.

1. Thacker, E. A.: A Study of the Professions Testing Ocular Refraction, Am. J. Ophth. 22:1227 (Nov.) 1939.

ORGANIZATION SECTION

HEALTH RECOMMENDATIONS OF THE AMERICAN YOUTH COMMISSION

A recent bulletin, "A Program of Action for American Youth," presents the recommendations of the American Youth Commission of the American Council on Education. The director of this commission is Floyd W. Reeves, of Washington, D. C., and the commission includes the following educators and public leaders:

Will W. Alexander, Administrator, Farm Security Administration.

Clarence A. Dykstra, President, the University of Wisconsin.

Dorothy Canfield Fisher, author.

William E. Givens, Executive Secretary, National Education Association.

Henry I. Harriman, formerly Chairman of the Board, New England Power Association.

George Johnson, Director, Department of Education, National Catholic Welfare Conference.

Mordecai W. Johnson, President, Howard University.

Chester H. Rowell, Editor, San Francisco *Chronicle*.

William F. Russell, Dean, Teachers College, Columbia University.

John W. Studebaker, United States Commissioner of Education.

Henry C. Taylor, Director, Farm Foundation.

Miriam Van Waters, Secretary Superintendent, Reformatory for Women, Framingham, Mass.

Matthew Woll, Vice President, American Federation of Labor.

Robert E. Wood, Chairman of the Board, Sears, Roebuck & Company.

Owen D. Young, Vice Chairman, Chairman of the Board, General Electric Company.

George F. Zook, ex-officio President, American Council on Education.

The report covers such topics as youth and war, employment, health and education. The section on health follows:

HEALTH

The efficiency and soundness of the nation are weakened by failure to bring the physical condition of our young people—and of the whole population—to the highest practicable level. This necessary element of national strength becomes especially evident in time of crisis, though it should not have to wait for war to bring it to public attention.

The nation learned with dismay in 1917 and 1918 that a third of the drafted men were physically unfit for the army and presumably were handicapped to a greater or less extent even for civilian life. There is reason to believe that the physical fitness of the population has improved since 1918, in spite of the recent years of depression, but great advances could still be brought about by the application of present knowledge.

PREVENTABLE HANDICAPS

The commission need speak only of young people, and youth is recognized as a comparatively healthy period. Yet a number of severe, though preventable, physical disasters are most common in youth and early adulthood. The list includes tuberculosis, venereal diseases, appendicitis, rheumatic heart disease, and deaths of mothers in childbirth. Other less acute disorders common in youth, such as infections of the nose and throat, nutritional disturbances, postural defects and dental decay, bring about immense losses in efficiency, for all of which society in one way or another has to pay the bill.

Moreover, youth is the period in which the foundations of future physical strength or weakness are laid and in which habits are formed that will later result in health or sickness.

The facilities now available to young people are wholly inadequate to ensure that the resources of modern science will be applied to the highest development of their health and physical fitness. These facilities are inadequate for health instruction and physical examination as well as for remedial care.

A recent survey made by the United States Office of Education disclosed that only 10 per cent of college students had ever had a course in hygiene in either secondary school or college. Few secondary schools give routine physical examinations, and it is probable that not more than 6 per cent of American youth have such examinations yearly.

The National Health Survey showed that, of the youth who were disabled for a week or more during 1936 by tuberculosis, pneumonia, appendicitis or childbirth, 30 per cent received no hospital treatment. Undoubtedly a vast number of minor illnesses go without medical attention and thus create a danger of more serious illness. At the same time an opportunity for health education is lost.

Physical recreation is universally recognized as a vitally important means of promoting good health. Healthful recreation, both physical and nonphysical, is essential to assure sound mental adjustment to life, especially in the difficult period of adolescence and early adulthood. But school athletic programs are still largely devoted to the intensive training of the few who are least in need of physical improvement. Camping tends to be restricted to youth in superior economic circumstances. There is a general lack of facilities for building and preserving a normal healthy physique, and the facilities that do exist are least available to the youth who are most in need of them.

These conditions place serious handicaps on several million young Americans in their personal lives. The same handicaps rest on the nation, which must depend on its coming generations for the success of its institutions and the security of its existence.

METHODS OF IMPROVEMENT

The remedy for these handicaps lies mainly in a nationwide public health program that will reach especially those elements in the population and those areas of the country which are economically at a disadvantage in providing for their own health. In order to be effective in a reasonable time, the program must be on a scale never before attempted in this country.

A national health program should be directed to the needs of citizens of all ages, but there may well be especial emphasis on youth. The schools can be of great service in providing health education and regular physical examinations and in giving physical training to all students, including those who have no especial athletic prowess. The principal agencies

dealing with out of school youth should assume a similar obligation. Improved means must be found to reach young people not now served by these agencies.

Public recreational programs, both physical and nonphysical, must be greatly expanded. They have been regarded too long as a public service in the luxury class. The contribution they can make to a higher level of physical fitness and to the preservation of morale in times of stress must now receive general recognition.

Adequate medical care for the whole population is a major necessity which is made more urgent by the unfortunate crisis in world affairs. Facilities must be provided where they are now lacking and increased where they are inadequate. Ways must be found to bring the cost of medical care within the means of the large section of the population that cannot afford to pay the whole cost under the present organization of medical service. Consideration should be given to the best method of distributing the cost of illness and medical care for that large group of normally self-supporting persons who are able to meet the average cost of average illness but who may be individually unable, out of current income or savings, to meet the emergency cost of serious or protracted illness. For the poor the provision of adequate medical care must be accepted as a public obligation, since in the long run the cost of neglect is greater than the cost of prevention or cure and falls on the community as a whole.

The commission is convinced that any public health program which will effectively strengthen the nation must have some financial support from the federal government. The inequalities among the states in their financial ability to support social services are so great that the improvements necessary for national security cannot be assured by reliance on only state and local resources. The program should, however, operate mainly through the states and through local agencies that are best able to judge of local needs and locally acceptable methods.

Science now has weapons that can be used to destroy some of the great enemies that have lowered the vitality of men and women in past generations. The nation cannot afford to have these possible advantages confined to the more fortunate. Every illness prevented and every young man or woman set on the road to a healthy, useful life are gains far beyond their cost in dollars. No time could be more appropriate than the present to take every advantage of the opportunities for national improvement which have been made available by advances in medical science.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—S. 2420 has passed the Senate, authorizing the Secretary of the Interior to make or cause to be made annual inspections and investigations in coal mines to obtain information relating to health and safety conditions, accidents, and occupational diseases therein. H. R. 5757 has passed the House, declaring it to be unlawful to deposit in the mails or to introduce into commerce by any means any magazine, periodical or other publication unless such publication contains conspicuously printed on one of its pages the name and address of the publisher thereof, the place of publication and the names of the editor, managing editor, business manager and owner or owners thereof and, if such publication is published by a corporation, the name of each officer of the corporation. These requirements would be imposed on medical journals, if the bill is enacted.

Bills Introduced.—S. Con. Res. 34, submitted by Senator Wagner, New York, proposes to establish an Advisory Council on Employment Security to study and report on the subject of unemployment insurance, including consideration of the coordination of unemployment insurance with other forms of social insurance. S. 3125, introduced by Senator Pepper, Florida, proposes to authorize an appropriation of $100,000 to enable the Surgeon General of the Public Health Service to conduct researches, investigations, experiments and studies relating to the cause, diagnosis and treatment of the common cold, "flu" and pneumonia, with a view to the development and prompt widespread use of the most effective methods of prevention, diagnosis and treatment of such diseases. S. 3127, introduced by Senator Sheppard, Texas, provides that in the appointment of medical officers of the Regular Army, reserve medical officers between the ages of 32 and 40 years who are qualified flight surgeons will be eligible for appointment subject to examination. S. 3131, introduced by Senator Hill, Alabama, proposes to extend the benefits of the United States Employees' Compensation Act to members of the Officers' Reserve and of the Enlisted Reserve Corps of the Army who are physically injured in line of duty while performing active duty or engaged in authorized training between the dates of Feb. 28, 1925, and July 15, 1939. S. 3161 and S. 3165, both introduced by Senator Davis, Pennsylvania, provide that all reserve officers of the Army called or ordered to active duty by the government, who suffer or have suffered disability or death in line of duty from disease or injury while so employed, shall be entitled to the same pension, compensation, retirement pay and hospital benefits as officers in the Regular Army with corresponding grades and length of service. S. 3170, introduced by Senator Murray, Montana, proposes to enact the American Youth Act. The bill proposes, among other things, that all young persons officially enrolled in a course of study in a professional or technical school of a university, such as a school of medicine, law, dentistry or engineering, who would, without financial aid, be unable to devote full time to the pursuit of such course of study, shall be eligible to receive a sum of money sufficient to enable such person to pay for personal board and lodging, books and laboratory equipment, and school fees. H. Con. Res. 40, submitted by Representative Carlson, Kansas, proposes to create a Joint Committee on Social Security to make a full and complete study of existing social security legislation. H. R. 7727, introduced by Representative Hendricks, Florida, proposes to increase and equalize the pensions of the disabled ex-service men of the Regular Establishment whose disabilities were service connected. H. R. 7925, introduced, by request, by Representative Rankin, Mississippi, proposes to liberalize benefits for disabled veterans and the dependents of deceased veterans. The bill provides, among other things, that any person who served in the military or naval forces of the United States during a recognized campaign or expedition, and who was honorably separated from such service, shall be granted hospitalization and domiciliary care by the Veterans' Administration subject to the same restrictions and limitations as are now applicable to World War Veterans. H. R. 7927, introduced by Representative Voorhis, California, provides for a statutory award of $10 a month to any World War veteran who was wounded, gassed, injured or disabled by any instrumentality of war in a zone of hostilities. H. R. 7938, introduced, by request, by Representative Lesinski, Michigan, proposes to amend the Veterans' Regulations so as to provide that if a disabled person is shown to have had a service-connected tuberculosis of a pensionable degree which has, in the judgment of the Administrator of Veterans' Affairs, reached a condition of complete arrest, he shall be entitled to a monthly pension of not less than $50. H. R. 7943, introduced by Representative Peterson, Florida, proposes that any World War veteran suffering from any mental or physical disability

or disabilities of a permanent character which totally incapacitates him for the performance of manual labor so as to render him unable to earn a support shall be rated as permanently and totally disabled for compensation and pension purposes. H. R. 7944, introduced by Representative Peterson, Florida, proposes to provide for a liberalized definition of permanent total disability, for pension purposes, on the basis of the inability of the individual veteran to earn a support by manual labor. H. R. 7946, introduced by Representative Routzohn, Ohio, proposes to amend the Veterans Regulations to provide that a disability, injury or disease will be held to have resulted from misconduct when it is due to felonious misconduct. H. R. 7971, introduced by Representative Mundt, South Dakota, proposes to prevent the pollution of the navigable waters of the United States. H. R. 7984, introduced by Representative Randolph, West Virginia, proposes to grant pensions to certain American Red Cross ambulance drivers of the World War. H. R. 8118, introduced by Representative O'Day, New York, proposes to amend the Social Security Act so as to bring within its unemployment and old-age provisions employees of a corporation, community chest, fund or foundation, organized and operated exclusively for charitable, scientific, literary or educational purposes, or for the prevention of cruelty to children or animals, subject to a specific exemption in favor of employees of churches, synagogues or other institutions of worship.

OFFICIAL NOTES

ADDRESSES BY OFFICIAL STAFF

DR. PAUL C. BARTON:

February 1—American Social Hygiene Association, Chicago.
February 10—Public Health Nurses, American Red Cross, Chicago.

DR. W. W. BAUER:

February 5—High School, Escanaba, Mich.
February 5—Service Club, Escanaba, Mich.
February 5—Public meeting, Escanaba, Mich.
February 15—Women's Field Army, American Society for the Control of Cancer, Louisville, Ky.
February 20—Peniel Community Center Forum, Chicago.
February 26—Jewish Women's Council, Chicago.
February 27-28—Joint Committee of the National Education Association and the American Medical Association, St. Louis.
February 29—American Association of School Administrators, St. Louis.

DR. MORRIS FISHBEIN:

February 1—Middle Atlantic Lumberman's Association, Philadelphia.
February 2—Promotional dinner, Charlotte Memorial Hospital, Charlotte, N. C.
February 6—Cincinnati Academy of Medicine, Cincinnati.
February 8—Illinois State Museum's Popular Science Series, Springfield, Ill.
February 11—National Conference on Medical Service, Chicago.
February 20—Service Clubs, Streator, Ill.
February 25—New York Committee of National Jewish Hospital (Denver), New York.
February 26—Town Hall, Syracuse, N. Y.
February 28—Western Electric, Morton High School, Chicago.
February 29—Noon Hour Book Talk, Public Library, Chicago.
February 29—Association of Medical Students, University of Chicago, Chicago.

DR. R. G. LELAND:

February 11—National Conference on Medical Service, Chicago.
February 19—Nineteenth Century Woman's Club, Oak Park, Ill.
February 24—Minnesota County Secretaries Conference, St. Paul.

DR. PAUL A. TESCHNER:

February 12—Mayfair Women's Club, Chicago.
February 15—Allen County Tuberculosis Association, Fort Wayne, Ind.
February 16—High School, Arlington Heights, Ill.
February 18—South Shore Community Church, Chicago.
February 20—Y. M. C. A., Chicago.
February 26—Marquette University School of Medicine, Milwaukee.

DR. NATHAN B. VAN ETTEN:

February 7—Regional Conference of Social Hygiene, New York.
February 12—Federation of State Medical Boards of the United States, Chicago.
February 13—Council on Medical Education and Hospitals, Chicago.
February 14—South Side Medical Assembly of Chicago,
February 21—First District Dental Society of New York, New York.

WOMAN'S AUXILIARY

Nebraska

An auxiliary to the Adams County Medical Society was organized in Hastings November 6. Mrs. J. W. Brown was elected president.

Minnesota

Dr. W. A. Coventry, Duluth, spoke at a luncheon meeting, following the regular meeting of the board of directors of the auxiliary to the Minnesota State Medical Association in St. Paul October 12. Mrs. A. C. Baker, president, discussed plans for the year to the thirty-two members of the board present.

The auxiliary to the Ramsey County Medical Society recently remodeled the kitchen at the Children's Home Society, a nonsectarian home for underprivileged children in St. Paul.

Washington

Members of the auxiliary to the Walla Walla County Medical Society are cooperating with the Women's Field Army of the American Society for the Control of Cancer in arranging public meetings on cancer in Walla Walla.

Mrs. Luman S. Roach, president of the auxiliary to the Washington State Medical Association, spoke at the December meeting of the auxiliary to the Yakima Medical Society.

Wisconsin

The auxiliary to the Brown-Kewaunee-Door County Medical Society met at the Bellin Memorial Hospital in Green Bay November 8. Auxiliary members came from Appleton, Denmark, Pulaski, Forest Junction, Oconto, Fond du Lac and Oshkosh to attend the meeting. Speakers were Mrs. Rollo K. Packard, president of the auxiliary to the American Medical Association, Mrs. F. W. Pope, president of the auxiliary to the State Medical Society of Wisconsin and Mrs. Eben J. Carey, chairman of the *Hygeia* committee of the auxiliary to the American Medical Association.

The auxiliary to the Winnebago County Medical Society has placed *Hygeia* in ninety-six schools in Winnebago County. At a recent meeting in Oshkosh Miss Lydia Bouressa of the Visiting Nurse Association in Neenah spoke on public health work.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARKANSAS

Norman Baker Sentenced to Prison — Denied New Trial.—Norman Baker, founder of hospitals at Muscatine, Iowa, and Eureka Springs, and one time candidate for governor and United States Senator in Iowa, was sentenced to four years in prison and fined $4,000 following his conviction on a charge of using the mails to defraud in advertising a "cancer cure," according to the New York *Times* January 26. R. A. Bellows, superintendent of the Baker Hospital in Eureka Springs, was sentenced to two years and Dr. Johnson L. Statler, technical adviser, was sentenced to a year and a day. As noted in THE JOURNAL Sept. 30, 1939, Baker surrendered to the U. S. marshal in Arkansas on a federal indictment charging him with using the mails to defraud. The present sentence and fine is the outcome of this indictment. The sentence was imposed January 25, two days after conviction. The action concluded a sixteen day trial. Motion for a new trial was denied. Dr. Orville L. Beatty, chief of staff at the Arkansas hospital, was acquitted. In June 1938 Baker moved his "cancer cure" business to Arkansas; in August 1937 he served a day in the Muscatine county jail and paid a $1,000 fine on a charge of practicing medicine without a license. For a number of years Baker ran a "sanatorium," a radio station and a magazine and newspaper in Muscatine. Baker's permit to operate a station in Muscatine was canceled in 1931.

CALIFORNIA

Society News.—The Los Angeles Surgical Society was addressed January 4 by Drs. Conrad J. Baumgartner on "Infections of the Neck"; Harold R. Witherbee, "Perforated Peptic Ulcer in Meckel's Diverticulum," and Hans von Briesen, "Gross Physiological Principles of Head Injury Treatment."——The San Francisco County Medical Society was addressed January 9 by Mr. Hartley F. Peart and Dr. Edward W. Twitchell on "The New Epilepsy Law—Its Implications in Relation to Driving Motor Vehicles," and Dr. Hans Lisser, "Some Clinical Experiences with the Newer Sex Hormones."——The Shasta County Medical Society sponsored a clinical conference in Redding recently; the speakers were Dr. John W. Cline, San Francisco, on "Preoperative Preparation and Postoperative Care" and "Use of X-Rays in Diagnosis of Acute Abdominal Conditions" and Dr. Chester L. Cooley, San Francisco, "Obstetrical Analgesia" and "Obstetrical Bleeding."

COLORADO

Society News.—At a meeting of the Pueblo County Medical Society in Pueblo January 16 the speakers were Drs. William H. Halley, Denver, on "Public Relations Program for the Society" and Mr. Harvey T. Sethman, "Review and Preview of the State Society's Scientific Programs."

Personal.—Dr. Edwin L. Foster, Arvada, was honored by the Clear Creek Valley Medical Society at its annual dinner meeting January 10 in Denver in recognition of his completing this year fifty years in the practice of medicine, forty of which have been spent in Colorado. Dr. Foster was elected president of the society at this meeting.

DISTRICT OF COLUMBIA

Annual Post-Graduate Clinics.—The eighth annual postgraduate clinics of the George Washington University Medical School and the annual reunion banquet of the George Washington Medical Society will be held February 16-17. This year for the first time the clinics are occupying two days instead of one. The clinics will be held in the medical school building with a luncheon on the first day while the banquet will be held in the main ballroom of the Mayflower Hotel Saturday night. Out-of-town speakers will include Drs. Alfred C. Beck, professor of obstetrics and gynecology, Long Island College of Medicine, Brooklyn; Willard R. Cooke, professor of obstetrics and gynecology, University of Texas School of Medicine, Galveston, and John Cooke Hirst, assistant professor of obstetrics, University of Pennsylvania School of Medicine, Philadelphia.

IDAHO

Iowa Teachers on State Society Program.—Members of the faculty of the State University of Iowa College of Medicine, Iowa City, will participate in the annual session of the Idaho State Medical Association in Sun Valley September 11-14. Included will be: Drs. Ewen M. MacEwen, dean and professor of anatomy; Clarence E. Van Epps, professor of neurology; Fred M. Smith, professor of theory and practice of medicine; Nathaniel G. Alcock, professor of genito-urinary surgery, and Arthur Steindler, professor of orthopedic surgery.

ILLINOIS

Study of Storage Battery Industry.—The state department of public health has begun a study of the storage battery industry in Illinois to determine the risks of employees. The basis of the study was the recent collection of material indicating danger of lead poisoning to employees in certain storage battery plants. The study will include medical examinations of employees and an engineering study of the plants themselves. Where evidence of lead poisoning is found, the engineering studies will determine the points in the manufacturing process where exposure exists. At the end of the investigation of each plant a report will be made to the manufacturer pointing out any opportunity of employee hazard and recommending methods of eliminating such hazard, according to a release from the health department.

Chicago

Personal.—Dr. Joseph C. Beck has been appointed associate dean of education at the Illinois Eye and Ear Infirmary and will devote half his time to supervision of graduate courses. Dr. Peter C. Kronfeld was recently appointed full time dean of education at the infirmary.

Branch Meetings.—The North Shore Branch of the Chicago Medical Society will devote its meeting February 6 to a symposium on peripheral vascular disease. The speakers will include Drs. Louis G. Herrmann, Cincinnati, on "Pathologic-Physiologic Basis for the Management of Peripheral Vascular Disease"; Frank V. Theis, "Thrombo-Angiitis Obliterans: Pathologic-Physiologic Studies on Smoking and the Treatment of the Disease," and Samuel Perlow, "Value of Prostigmine in the Treatment of Peripheral Vascular Disease."

Asa Bacon Library to Be Dedicated.—The Asa S. Bacon Library will be dedicated at the American Hospital Association February 12. The library, formerly the property of the American Conference on Hospital Service, has belonged to the hospital association since July 1930. The space assigned to it has been remodeled and by action of the board of trustees of the association the library has been designated the "Bacon Library" in appreciation of a lifetime of service which Asa S. Bacon has given to hospital service. Forty-five hundred package libraries are sent to more than 3,200 hospitals and their personnel each year; 300 new books and the issues of fifty-two different magazines are added each year. Mr. Bacon has been superintendent of Presbyterian Hospital for forty years.

INDIANA

Society News.—The Indianapolis Medical Society was addressed January 16 by Drs. Albert Murray DeArmond and Ezra Vernon Hahn on "Convulsive Attacks, Their Diagnosis and Treatment"; Larue D. Carter, "Vascular Cerebral Accidents and Their Management," and Robert L. Glass, "Intraspinal Tumors." Dr. Alfred W. Adson, Rochester, Minn., discussed "Pain and Its Control" before the society January 23.——Dr. Gordon F. McKim, Cincinnati, discussed "Etiologic Factors in Pyelonephritis" before the Wayne County Medical Society in Richmond January 11.——At a meeting of the Fort Wayne Medical Society, Fort Wayne, January 16, Dr. Harry A. Towsley, Ann Arbor, Mich., spoke on "The Acute Exanthematous Diseases."

LOUISIANA

Society News.—A symposium on pneumonia was presented before the Franklin Parish Medical Society at Winnsboro recently by Drs. John R. Schencken, Robert H. Bayley and Joseph O. Weilbaecher Jr., all of New Orleans.——At a meeting of the New Orleans Gynecological and Obstetrical Society with the Mercy Hospital staff recently the speakers

were Drs. Max M. Green on "Upper Urinary Tract Infection"; Philips J. Carter, "Urethral Caruncle"; Rupert E. Arnell, "Granuloma Venereum of the Cervix," and William F. Guerriero, Monroe, "Criteria for the Management of Toxemia of Pregnancy."——The Lafourche Valley Medical Society was addressed in Houma recently by Drs. Carlo J. Tripoli, New Orleans, on "Treatment of Lobar Pneumonia" and Harry Vernon Sims, New Orleans, "Sacral Analgesia in Gynecology."——The Orleans Parish Medical Society was addressed recently by Dr. Ansel M. Caine, New Orleans, on "Here and There in Anesthesia" and Dr. John A. Trautman, New Orleans, "Hyperpyrexia—Its Indications and Complications; Evaluation of Results Based on 5,500 Fever Sessions."

MASSACHUSETTS

Summer Courses in Public Health.—The department of biology and public health, Massachusetts Institute of Technology, Cambridge, is offering summer programs in public health, school health and health education, July 21-August 21. The courses lead to the certificate in public health and will cover communicable diseases, principles of sanitation, public health administration and vital statistics. Registration will be limited. Eligible candidates will be accepted in the order in which their applications for admission are received, all applications to be in by May 15. Notification of acceptance will be sent to the applicant not later than June 1. Tuition is $120 and registration fee $5 a summer for those who register for the entire program, consisting of four summers. Separate tuition fees are set for individual courses.

Society News.—Dr. John S. Hodgson, Boston, addressed the Essex North and South District medical societies in Danvers January 3 on head injuries.——The Boston Surgical Society devoted its session January 17 to a clinical program; among those participating were Drs. Charles G. Mixter on "Cholangiography During Operation" and Samuel Gilman, "Use of the Newer Vasoconstrictor Agents During Spinal Anesthesia."——At a meeting of the Pentucket Association of Physicians in Haverhill February 8 Dr. Fuller Albright, Boston, will discuss "Studies in Endocrinology." The association was addressed January 11 by Drs. John L. Fromer, Brookline, on "Relation of Allergy to the General Practitioner" and John W. Norcross, Boston, "The Vitamins and Avitaminosis."——A symposium on the treatment of meningitis will be presented before the New England Pediatric Society February 7 by Drs. Josephine B. Neal, New York, and Maxwell Finland and Leroy D. Fothergill, both of Boston.

MICHIGAN

Changes in Health Officers.—Dr. Rolla J. Shale, Akron, Ohio, has been placed in charge of the health unit for Ontonagon and Baraga counties, filling the vacancy caused by the resignation of Dr. Pearl A. Toivonen in August. Dr. Alexander M. Campbell, Grand Rapids, has been serving as temporary director.

Society News.—Dr. Lynn A. Ferguson, Grand Rapids, discussed "Diagnosis and Office Management of Common Rectal Disorders" before the Muskegon County Medical Society January 26 in Muskegon.——Dr. William F. Braasch, Rochester, Minn., discussed "Hypertension with the Surgical Kidney" before the Wayne County Medical Society, Detroit, January 15.——The West Side Medical Society, Detroit, was addressed January 18 by Drs. Robert L. Schaefer on "Endocrine Treatment of the Undescended Testis"; Arnold J. Lehman, "Medical-Legal Importance of Chemiluminescence for Demonstrating the Presence of Blood," and Plinn F. Morse, "Diagnosis Before and After Pathologic Examinations, with Cases to Illustrate."——Dr. Carey P. McCord, Detroit, addressed the Genesee County Medical Society in Flint January 24 on silicosis.——Dr. Russell D. Herrold, Chicago, addressed the Kalamazoo Academy of Medicine January 16 on "Management of Urinary Infections with Chemotherapy."

MINNESOTA

The E. Starr Judd Lecture.—Dr. Edward D. Churchill, John Homans professor of surgery, Harvard Medical School, Boston, will deliver the seventh E. Starr Judd Lecture at the University of Minnesota, Minneapolis, March 14. His subject will be "Surgery of the Lungs."

Course in Training for Hospital Librarians.—The division of library instruction of the University of Minnesota announces a course for the training of hospital librarians during the spring quarter beginning April 1. The course covers the administration of hospital libraries, book selection for patients, work with mental patients and medical reference; in addition it includes six weeks' internship. At present this is the only course in hospital librarianship leading to a degree in an accredited library school, it was stated. All students who take this course for credit receive a special certificate authorized by the regents of the university. Inquiries for further information should be addressed to Mr. Frank K. Walter, librarian, University of Minnesota, Minneapolis.

MONTANA

Meningo-Encephalitis Epidemic.—Thirty-nine cases of meningo-encephalitis occurred in and around Anaconda between October 13 and December 4, according to *Public Health Reports*, December 29. There were two deaths.

NEW JERSEY

Society News.—Dr. Edward H. Dennen, New York, addressed the Academy of Medicine of Northern New Jersey, Newark, January 18 on "Choice of Instrument in Delivery with Forceps." Dr. James W. White, New York, addressed the section on eye, ear, nose and throat January 8 on "Variations in Congenital Anomalies" and Dr. Ernest H. Gaither, Baltimore, the section on medicine and pediatrics January 9 on "Modern Aspects of Peptic Ulcer Therapy."——Dr. George Harlan Wells, Philadelphia, addressed the Atlantic County Medical Society, Atlantic City, January 12 on "Cause and Treatment of Congestive Heart Failure."

Memorial to Dr. Hagerty.—A meeting in memory of the late Dr. John F. Hagerty, Newark, was held at the Academy of Medicine of Northern New Jersey January 23. The principal address was made by Dr. Frank H. Lahey, Boston, on "Carcinoma of the Colon and Rectum; Early Diagnosis, Surgical Management and End-Result." Other speakers were the Rev. James F. Kelley, president of Seton Hall College; Dr. Edward Mathias Zeh Hawkes, Newark, president of the Medical Society of New Jersey, and Dr. Bernard A. O'Connor, Newark, who presented a memorial plaque. Dr. Charles M. Robbins, Newark, president of the academy, accepted the plaque.

NEW YORK

Society News.—Dr. Conrad Wesselhoeft, Boston, addressed the Medical Society of the County of Albany, Albany, January 24 on "Advances in Management of Infectious Diseases."

Lectures at Cooperstown.—The Mary Imogene Bassett Hospital, Cooperstown, is presenting Friday afternoon lecture-clinics throughout the winter. The program for the remainder of the series is as follows:

Dr. George M. MacKenzie, Puerperal Infections, February 9.
Robert M. Pike, Ph.D., Laboratory Aids in the Diagnosis and Management of Acute Infectious Disease, February 16.
Dr. MacKenzie, Therapeutic Use of Sulfanilamide and Sulfapyridine, February 23.
Dr. John H. Powers, Urologic Emergencies, March 1.
Dr. David M. Kydd, Nephritis, March 8.
Dr. Monroe A. McIver, Intestinal Obstruction, March 15.
Dr. Floyd J. Atwell, Toxemias of Pregnancy, March 22.
Dr. Marjorie F. Murray, Infant Feeding, March 29.
Dr. Pike, Etiology and Epidemiology of Influenza, April 5.
Dr. Charles C. McCoy, Geriatrics, April 5.
Dr. McIver, Surgical Treatment of Acute Cholecystitis, April 12.
Dr. McCoy, Disease of the Gallbladder, April 17.

New York City

Personal.—Dr. Alexis Carrel has joined the staff of the French ministry of health for the duration of the war, according to the *British Medical Journal*.——Dr. Smith Ely Jelliffe has been made an honorary member of the Dutch Society of Psychiatry and Neurology.

Society News.—Drs. William F. Rienhoff Jr., Baltimore, and Béla Schick addressed the Brooklyn Thoracic Society January 19 on "Bronchogenic Carcinoma and Its Surgical Treatment" and "Childhood Tuberculosis" respectively.——Drs. Wheelan D. Sutliff and Josephine B. Neal addressed the Medical Society of the County of Kings January 16 on "Sulfapyridine Therapy for Pneumonia" and "Chemotherapy in Meningitis" respectively. Dr. Daniel A. McAteer, Brooklyn, was installed as president and made his inaugural address on "The Doctor's Dilemma."——Dr. Wilder G. Penfield, Montreal, addressed the Medical Society of the County of New York at its annual meeting January 22 on "Diagnostic Aids in the Surgery of the Brain." Dr. Walter P. Anderton was installed as president.

OHIO

Society News.—Dr. James M. Ruegsegger, Cincinnati, addressed the Montgomery County Medical Society, Dayton, January 5 on recent developments in the treatment of pneumonia.——Drs. Frederic Schreiber and Wyman C. C. Cole, Detroit, addressed a special joint meeting of the Academy of Medicine of Cleveland with the pediatric section of the academy January 26 on "Clinical Significance of Asphyxia" and "Etiologic Factors in Neonatal Asphyxia" respectively.——Dr. Russell L. Haden, Cleveland, addressed the Academy of Medicine of Cincinnati January 16 on "Use of Liver and Iron in the Treatment of Anemia." Dr. Francis Carter Wood, New York, addressed the academy January 23 under the auspices of the cancer control council of the Public Health Federation on "Underlying Principles of Radiation Therapy and Their Practical Application in Treating Cancer." The society will present a program February 6 on "The Place of Group Practice in American Medicine." The speakers will be Drs. Morris Fishbein, Chicago, Editor of THE JOURNAL, and Kingsley Roberts, New York.

OKLAHOMA

Statewide Cancer Program.—The cancer committee of the Oklahoma State Medical Association in cooperation with the state health department and the Women's Field Army of the American Society for the Control of Cancer has arranged a course of instruction on cancer to be given in forty cities during February and March. The instructor will be Dr. James Samuel Binkley of the staff of Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York. The series will begin in Miami February 5 and end in Weatherford March 29. Dr. Wilbur F. Keller, Oklahoma City, is chairman of the cancer committee and the other members are Drs. Paul B. Champlin, Enid, and Ralph A. McGill, Tulsa.

PENNSYLVANIA

Society News.—Dr. Daniel M. Brumfiel, Saranac Lake, N. Y., addressed the Northampton County Medical Society January 19 on silicosis.——Dr. James M. Gaffney, Cresson, addressed the Blair County Medical Society, Altoona, January 23 on "Collapse Therapy in Pulmonary Tuberculosis."

New Commandant at Carlisle Barracks.—Brig. Gen. Roger Brooke, now commandant of Letterman General Hospital, San Francisco, will be transferred May 1 to become commandant of the U. S. Army Medical Field Service School at Carlisle, it is reported. He will succeed Col. Herbert C. Gibner, who has been in charge since 1937.

Philadelphia

Personal.—Dr. Arthur P. Keegan has been appointed chief police surgeon of Philadelphia to succeed Dr. Hubley R. Owen, who recently became director of health.

Annual Thomas Lecture on Urology.—Justina Hill, Ph.D., associate in urology, Johns Hopkins University School of Medicine, Baltimore, delivered the annual B. A. Thomas Oration of the Philadelphia Urological Society January 22 on "Some Recent Contributions of Bacteriology to Urology."

Society News.—Dr. Harry Eagle, Baltimore, addressed the Eastern Pennsylvania Chapter of the Society of American Bacteriologists January 23 on "Immunologic and Chemotherapeutic Studies in Syphilis"; Dr. Charles A. Jones, Fred Boerner, V.M.D., and Marguerite Lukens, A.B., presented a paper on "Simplified Microscopic and Macroscopic Flocculation Tests for the Diagnosis of Syphilis."——Dr. Temple S. Fay gave his presidential address before the Philadelphia Neurological Society January 26 on "Pain and Its Response to Measures of Refrigeration."——Dr. Francis W. Sinkler was elected president of the Aid Association of the Philadelphia County Medical Society at its annual meeting January 8; Dr. Henry P. Brown Jr. is secretary.

Pittsburgh

Hospital News.—Dr. Fred L. Adair, Chicago, gave an address at the Elizabeth Steel Magee Hospital January 17 on "Indications and Contraindications for Cesarean Section."

Society News.—Dr. William B. McLaughlin addressed the Pittsburgh Pediatric Society January 10 on orthopedic problems in pediatric practice.——Dr. Julius M. Rogoff addressed the Pittsburgh Medical Forum January 13 on "Endocrine Studies in Hypertension."

RHODE ISLAND

Public Health Meeting.—The fourth annual meeting of the Rhode Island Public Health Association was held in Providence January 23 with tuberculosis control as the topic of discussion. The guest speakers were Drs. Alton S. Pope, Boston, director of the division of tuberculosis in the Massachusetts Health Department; Herbert R. Edwards, director of the tuberculosis bureau, New York City Department of Health, and Thomas B. McKneely of the U. S. Public Health Service. Dr. Claude C. Pierce, regional consultant of the public health service, was the principal speaker at a luncheon.

WASHINGTON

Personal.—Dr. George H. Johnson, Vancouver, has been appointed health officer of Clark County to succeed Dr. John A. Kahl, Vancouver.——Dr. Cedric E. M. Tuohy, Snohomish, has been appointed medical superintendent of the Aldercrest Sanatorium, Snohomish, and the Snohomish County Hospital, Monroe.——Dr. Thomas C. Baldwin, Port Orchard, has been named health officer of Kitsap County.

Society News.—Dr. Edwin E. Osgood, Portland, Ore., addressed the Spokane County Medical Society, Spokane, January 11 on "Differential Diagnosis and Treatment of Anemias."——Drs. Raymond L. Zech and James M. Bowers, Seattle, addressed the Cowlitz County Medical Society, Longview, December 20 on "Upper Abdominal Surgery" and "Diagnosis and Treatment of Anemia" respectively. Dr. William Norman Moray Girling, Longview, presented a case of conical cornea.——Drs. Robert L. Benson and Frank Perlman, Portland, Ore., addressed the Yakima County Medical Society, Yakima, December 11 on "Recent Developments in the Field of Allergy" and "Therapeutics" respectively.

PHILIPPINE ISLANDS

Infantile Paralysis Closes Manila School.—The American school in Manila was closed January 16 because of the prevalence of infantile paralysis, the New York *Times* reported January 17. Various meetings have been suspended and clubs have closed their swimming pools. Health authorities said that these measures were only precautionary and that the disease was not epidemic.

PUERTO RICO

University News.—The School of Tropical Medicine of the University of Puerto Rico under the auspices of Columbia University, New York, conducted an informal ceremony on the fifth anniversary, Nov. 1, 1939, of the death of Dr. Bailey K. Ashford. A wreath was laid at the foot of a bust at the medical school and addresses were made by José M. Gallardo, LL.D.; Juan B. Soto, Ph.D.; Drs. Eduardo Garrido Morales and Jose C. Ferrer and Donald H. Cook, Ph.D. Dr. Ashford went to Puerto Rico as an army surgeon in 1898 and except for short periods of work elsewhere spent the remainder of his life on the island. His work was largely responsible for the establishment of the school of tropical medicine, the speakers pointed out, and when it was founded in 1926 he became professor of tropical medicine and mycology.

GENERAL

Annual Conference on Radiology.—The tenth annual conference of the American College of Radiology will be held at the Palmer House, Chicago, February 11. The annual meeting of the teachers of clinical radiology will be held in connection with the conference February 11 under the sponsorship of the commission on education of the college. The program will include a symposium on radiology in the medical school curriculum, ending with a discussion on "What Facilities Are Available for Graduate Teaching of Visiting Radiologists from South America?" Monday will be devoted to a meeting of the chancellors of the American College of Radiology.

Deaths in Principal Cities.—The Bureau of the Census reports that 429,419 persons died in eighty-eight major cities in the United States in 1939 as compared with 424,348 in 1938, an increase of 1 per cent. Infant deaths decreased from 27,159 in 1938 to 25,713 in 1939. These figures were compiled from weekly telegraphic reports received from departments of health in the cities listed. Because of the impracticability of making accurate estimates of city populations, total death rates were not computed. The weekly death totals reported in 1939 were consistently lower than the average totals for the preceding three years from January to July, but during the rest of the year they were closely similar.

Special Society Elections.—Dr. John Staige Davis, Baltimore, was elected president of the Southern Surgical Association at the annual meeting in Augusta, Ga., in December. Drs. William Lowndes Peple, Richmond, Va., and Worcester A. Bryan, Nashville, Tenn., were elected vice presidents and Edward W. Alton Ochsner, New Orleans, was reelected secretary. The 1940 meeting will be at Hot Springs, Va.—— Dr. Alfred J. Brown, Omaha, was elected president of the Western Surgical Association at its annual meeting in Los Angeles in December. Drs. William M. Mills, Topeka, Kan., and Fred F. Attix, Lewistown, Mont., were made vice presidents and Dr. Albert H. Montgomery, Chicago, was reelected secretary. The next meeting will be in Topeka.

Meeting of Southern Obstetricians.—The annual meeting of the South Atlantic Association of Obstetricians and Gynecologists will be held in Richmond, Va., February 9-10 at the Jefferson Hotel. The guest speakers will be Drs. Philip F. Williams, Philadelphia, and Arthur H. Curtis, Chicago. Other speakers will be:

Dr. Robert Ferguson, Charlotte, N. C., A Review of Data on 600 Women Tested for Patency of the Fallopian Tubes.
Dr. John Randolph Perdue, Miami, Fla., The Postpartum and Postoperative Bladder.
Dr. Francis Bayard Carter, Durham, N. C., Late Toxemias of Pregnancy with Analysis of Postmortem Findings.
Dr. Robert B. Greenblatt, Augusta, Ga., The Estrogenic Activity of Diethylstilbestrol.
Dr. Richard B. Dunn, Greensboro, N. C., Asphyxia Neonatorum.
Dr. Gerry R. Holden, Jacksonville, Fla., The Use of Radium in Treating Menopausal Hemorrhages of Benign Origin.
Dr. Charles J. Andrews, Norfolk, Va., The Third Stage of Labor with a Description of a New Method of Expression of the Placenta.

Howard W. Blakeslee, New York, science editor of the Associated Press, will be the speaker at a banquet Friday evening. The president of the association is Dr. Robert E. Seibels, Columbia, S. C.

Symposium on Education and Health.—The Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, which was reorganized in 1939, will sponsor a symposium on "How Can Education Improve the Nation's Health?" as part of the annual meeting of the American Association of School Administrators, a department of the National Education Association, in St. Louis February 28. The program is as follows:

Alexander J. Stoddard, superintendent of schools, Philadelphia, Viewpoint of the Educational Policies Commission.
Dr. William W. Bauer, director, Bureau of Health Education, American Medical Association, Chicago, What the Private Physician Expects the Schools to Teach.
Dr. Walter H. Brown, Stanford University, Calif., The Contribution of School to Individual and Public Health.
John W. Studebaker, U. S. Commissioner of Education, Washington, D. C., Administrative Problems and Procedures in Health Education.

Mr. Frank Cody, superintendent of schools, Detroit, and Dr. Charles C. Wilson, Hartford, Conn., chairman of the joint committee, will preside. This symposium is a part of the program of the committee to bring about improved mutual understanding of the common health problems in education which are faced by both educators and physicians. Three such symposiums have been held in connection with the annual sessions of the American Medical Association in Atlantic City, San Francisco and St. Louis; this is the first with the National Education Association departmental meeting. Physicians as well as teachers are welcome at the meetings.

The Spanish Prisoner Swindle.—Physicians in many parts of the country are being solicited, among other persons, to participate in what is known as "the old Spanish prisoner's swindle," a perennial fraudulent scheme, according to the Post Office Department. The *Wisconsin Medical Journal* in its December issue reported that several physicians in that state had received letters from a person supposed to be incarcerated in Mexico. The *Bulletin* of the Summit County (Ohio) Medical Society for January indicated that the secretary of the society has been approached by the swindler. A copy of the letter was sent by a Kansas physician. Three New Haven physicians were also among the intended victims. The letter asks the aid of the recipient in saving the sum of $285,000 (some of the reports say $185,000) hidden in a trunk somewhere in the United States, in return for which the rescuer is to receive a third of the money. A New Haven physician, wishing to investigate, answered the letter and received an elaborate set of documents, a detailed story of the prisoner's sentence for bankruptcy, his efforts to escape from the country and his detention. The check for the trunk is said to be in a suitcase held by the customs officers and about to be sold at auction unless it is redeemed by payment of the court costs of about $4,250. The person who will pay the $4,250 is promised his reward when the trunk is located. The Chicago *Tribune* January 9 published the story of a university professor who went to Mexico in answer to the letter and handed over $4,500 to a "representative" of the "prisoner." He received a check on a bank in Houston, Texas. He stopped at the bank and was told that six such checks had been presented within a week. The Chicago Better Business Bureau reported recently that one in five persons replies to the letter and that about one in twenty sends the money. This bureau also quoted the Dallas Better Business Bureau to the effect that a fraud order had been issued against twenty-three Mexicans who had mailed letters from Mexico City, Puebla, Monterey and Tampico. All persons receiving such letters are advised to send them to the U. S. Post Office Department, Washington, D. C., with the envelops in which they were received.

Government Services

Changes in Public Health Service

The United States Public Health Service announces the following recent promotions to medical director: Drs. Howard F. Smith, Manila, P. I.; Lon O. Weldon, Fort Stanton, N. M.; James G. Townsend, Washington, D. C., and William H. Slaughter, Chicago. Included among those promoted to and commissioned as senior surgeon are Drs. Stephen A. De Martini, Cleveland, and Oliver C. Wenger, Chicago, and the following assistant surgeons have been promoted to the grade of passed assistant surgeons: Drs. Byron J. Olson, Washington, D. C.; Harold R. Sandstead, Hines, Ill.; James A. Grider Jr., Angel Island, Calif.; Charles M. McGill, Savannah, Ga., and Norman H. Topping, Washington, D. C.

Civilian Physicians Wanted for Duty with the CCC

Vacancies now exis' in the Civilian Conservation Corps in the Eighth Corps Area wherein the services of physicians can be utilized as civilian employees (physicians) or as contract physicians. Applicants should be graduates of recognized medical schools and should address their applications to The Surgeon, Eighth Corps Area, Fort Sam Houston, Texas. Consideration will be given to applicants, as follows:

1. Medical Reserve officers who are eligible for active duty and promotion. They may be placed on duty under classification P-3 at the initial rate of pay of $3,200 a year.
2. Physicians who are not members of the Medical Reserve Corps can be placed on duty as contract physicians at the initial rate of pay of $3,200 a year.

Applicants must consider themselves physically qualified and, if selected, they must report to their first place of assignment at their own expense, and if found physically qualified they will be appointed at the respective rates. If on being relieved from duty, either at the request of the individual or for the convenience of the government, the return transportation must also be at the expense of the individual.

Standards for Venereal Disease Control

Standards with which states using federal funds for venereal disease control have been asked to comply beginning January 1 were recently announced by the U. S. Public Health Service. Seven general provisions were listed as follows:

1. State and local laboratories receiving funds shall demonstrate that serologic tests for syphilis performed by them have a satisfactory sensitivity and specificity rating.
2. Laboratories receiving federal money shall provide services for venereal diseases on the same basis as for other communicable diseases.
3. Health departments and clinics receiving funds shall provide free diagnostic and treatment facilities for (a) the diagnosis and emergency treatment of all patients who apply; (b) all patients referred to a private physician either for continued treatment or for consultative advice and opinion; (c) all patients unable to afford private medical care.
4. All antisyphilitic drugs shall be distributed free on request to all licensed physicians.
5. Diagnostic and treatment facilities shall be available to all persons whether from the particular state or some other location.
6. Properly qualified full time venereal disease control officers shall be employed by the state department of health and all municipalities receiving funds.
7. State health officers shall give due consideration to the relatively higher prevalence of syphilis in urban areas.

These standards constitute the framework around which it is hoped that the complete program will be developed, according to a statement from the surgeon general. He pointed out, however, that the money appropriated by the federal, state and local governments plus the funds made available by various philanthropic and other agencies does not yet approximate the estimates considered necessary for an effective campaign against the venereal diseases.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 6, 1940.

War Neuroses

During the last war the large number of neuroses engendered by fear, shock, exhaustion, physical and mental strain or lack of sleep caught the medical officers of the army unprepared with any organization or agreed method of treatment. These neuroses were popularly called "shell shock," for it was supposed that they were due to the physical effects of high explosives. But it was found that similar symptoms occurred among men who had never been exposed to explosions and were well known in civil life. Moreover, many men who were blown up or buried beneath débris to the same extent returned to duty without suffering any durable effects. The minister of pensions convened a conference under the chairmanship of Lord Horder to advise the government as to the general principles for dealing with these cases. Its report has just been presented and issued to the medical services.

The report points out that most of these neuroses took the form of either an anxiety state or hysteria. The anxiety states had a common characteristic: the constant presence of fear or anxiety accompanied, to a greater or lesser extent, by vasomotor and visceral concomitants. The source of anxiety was the fear of being found afraid or of financial loss and domestic worries. The anxiety is out of all proportion to the cause. Hysteria provides the clearest example of neurosis due to failure of adaptation as the result of conflict between individual needs and social requirements. Suggestion is the most important factor in causing the symptoms. Physical manifestations of severe emotional disturbance, such as mutism and tremors, or temporary loss of power in the limbs due to a minor physical injury, are readily perpetuated as hysterical symptoms in men subjected to physical or mental stress. Suggestions by medical officers, in the course of examination, are often responsible for such symptoms. Underlying the process of suggestion is a conflict between the instinct of self preservation and the ideas of duty and self respect. The development of the symptoms satisfies the patient's ethical requirements and provides an escape from duty on the ground of physical incapacity.

In 1920 the army council appointed a committee to collate the medical experience of the war for future use. The committee reported: 1. The term "shell shock" has been a gross and costly misnomer and should be eliminated. It is a catchword which reacts unfavorably on the patient and others. 2. The war produced no new nervous disorders. The cases formed three classes: (*a*) Genuine concussion without visible wound as a result of shell explosion. This amounted to only 5 to 10 per cent of all cases. (*b*) Emotional shock, whether acute in men with a neuropathic disposition or developing slowly as a result of prolonged strain and terrifying experience, the final breakdown being sometimes due to some trivial cause. This formed 80 per cent of all cases. (*c*) Nervous and mental exhaustion, the result of prolonged strain and hardship.

The diagnosis of concussion should be made only when the history or symptoms leave no doubt of physical injury by the direct explosion of a shell. The concussed patient becomes immediately unconscious or at least severely dazed. When the immediate effect passes off there is complete amnesia for a period immediately before and after the injury. Patients suffering from emotional shock may say that they became unconscious, but careful questioning will show that they can recall most of their experiences.

As to treatment, the first essential when these patients arrive at an aid post is to convince them that they have received no serious injury. When confusion, excitement, loss of memory and disorientation are the chief symptoms, rest, warmth, hot drinks with plenty of sugar or a dose of bromide or phenobarbital will be necessary. Restless or excited patients may be given a hypodermic injection of morphine or soluble phenobarbital combined with hyoscine. When hysterical symptoms predominate an attempt should be made to remove them by suggestion.

PARIS

(From Our Regular Correspondent)

Dec. 23, 1939.

Cushing's Disease

In a lecture recently given by Marañon at the medical clinic of St. Anthony's Hospital, he discussed the pathogenesis of Cushing's syndrome, which Cushing attributed to an adenomatous condition of the anterior hypophysis. He also conceded the pluriglandular nature of the disease. However, in the course of the years the frequency of adrenal lesions has been observed. Marañon claims that "Cushing's disease is a pluriglandular syndrome, the fundamental and often the only characteristic of which is adrenal hyperplasia." He stated that never had there been observed experimentally any effect of the anterior lobe of the hypophysis on other glands similar to that observed in Cushing's disease. On the other hand, the hypophysial lesions described by Cushing were not specific. On the contrary, "in almost all cases" hyperplastic lesions of the adrenal glands were noted and often these changes constituted the anatomopathologic picture. Marañon admitted that cases of Cushing's disease were reported in which the adrenal glands were described as normal. He discussed these cases but considered those undeniable (there were notably four in Cushing's list) in which normal hypophyses were found along with pathologic adrenal glands.

Marañon also called attention to the presence, in the blood and urine of patients who had Cushing's disease, of large quantities of a substance, probably a hormone, that had the same properties as that of the adrenal cortex. He indicated that in certain cases there was an excessive metabolism of the adrenal secretion, that hypersodemia was present and that hirsutism, hyperthyroidism, glycosuria and hypertension were adrenal symptoms. Marañon, however, made no reference to the therapeutic results which are one of Cushing's arguments. According to him, Cushing's syndrome is a pluriglandular disease in which adrenal hyperplasia predominates. Hypophysial basophilism does not possess a significance superior to the thyroid, parathyroid, pancreatic or genital lesions which most often accompany it.

Tetanus Anatoxin

In a recent meeting of the Académie des sciences, Gaston Ramon and Edouard Lemetayer set forth the value and duration of the immunity conferred by tetanus anatoxin. Thousands of animals, chiefly horses, have been immunized by the anatoxin with two injections of 10 cc. at intervals of one month. A little tapioca powder is added to each injection to aid the immunization. A year after the two injections a third injection is administered, likewise of 10 cc. This study was conducted for nine additional years. It demonstrated the importance and stability of the immunity conferred by anatoxin. In 127 control horses the antitoxin rate was equal or superior to one one-hundredth of the international unit and often reached one third. It never went below one three-hundredth. The immunity conferred lasted for at least eight years. Before antitetanus vaccination was generalized, about fifty cases of tetanus were expected out of a total number of 13,000 horses.

After six years of regulated vaccination, no case occurred in 16,000 horses.

It is needless to stress the importance of these results for man. The complete, or almost complete, disappearance of tetanus may be looked for through the suppression of the reservoirs of virus. In more than a million persons vaccinated during military service, no serious accident was noted nor any case of tetanus. The present war will probably furnish a new proof of the immunizing effects of anatoxin.

Effect of Cobra Venom on Sugar in Blood

The effect of cobra poison on higher animals and man is complex because it contains various substances productive, even in isolation, of alteration in the red blood corpuscles, of coagulation or hydrolysis of certain proteins and of other effects, many of which have been, or will be, used in medicine. Gabriel Bertrand and Radu Vladesco add to the effects already noted the significant increase of sugar in the blood. They experimented with cobra poison on rabbits and guinea pigs, animals which react differently. Guinea pigs are much more allergic. Blood specimens were obtained by ventricular puncture after previous injections of cobra poison at different strengths. In guinea pigs a high hyperglycemia was provoked that continued to increase until the animals died. In rabbits almost no effects were observed. There is therefore present in cobra poison a hyperglycemia increasing factor. This was also found, in different proportions, in fourteen species of venomous snakes, among which are included the American rattlesnake, several vipers, the naja, the copperhead and other North American serpents. It differs from echidnase and is more generally distributed than the latter substance. Echidnase exists, in fact, only in vipers; nor is it identical with echidnovaccine, and it is absent from the white venom of Vipera aspis. It is premature to conjecture the possible medical applications of this work, but Bertrand's studies and those of his collaborators have already been therapeutically fruitful.

BUENOS AIRES

(From Our Regular Correspondent)

Dec. 23, 1939.

Third International Conference on Nutrition

The third International Conference on Nutrition was held in Buenos Aires October 9-14. It was arranged by the League of Nations principally for countries in the western hemisphere, who were invited to send expert delegates. The first and second conferences, in which Europe, Asia and the United States of America were represented, met at Geneva. Not only members of the League of Nations but also other American countries took part by sending so-called observers who, however, shared in the work of the conference. Other organizations which were represented included the Unión Sanitaria Panamericana with headquarters in Washington and the Office internationale d'Hygiène publique with headquarters in Paris. The League of Nations had delegated a specialist in the field of the economic aspects of nutrition. The International Labor Office in Geneva had also sent a representative. Sixteen countries were present altogether. Prof. Dr. Pedro Escudero, director of the Instituto Nacional de la Nutrición of Argentina and well known for his contributions in this field, was chairman of the sessions. The present report is based partially on a synopsis of the results of this conference prepared by him. Miss Hazel K. Stiebeling represented the United States. The conference met under the auspices of the Argentine government and was formally opened by its minister of the exterior, Mr. José M. Cantilo. Some of the highlights of the proceedings of the conference are herewith submitted.

STATUS OF NUTRITION IN THE WESTERN HEMISPHERE

The open discussion of nutrition led to some tragic revelations of the extent of malnutrition that affects sections of all countries of the western hemisphere. In consequence of subnormal nutrition, large sections of the population are incapable of a normal work program and do not complete an average normal span of life. Accurate statistics are not available for all countries. However, sufficiently reliable conclusions can be drawn from the wage scales and the kind and quality of articles of food produced. In the country of the western hemisphere that is most favorably situated, a quarter of the working population does not earn enough to purchase sufficient food. It has been clearly demonstrated that ignorance of the value of nutrition as a basic prerequisite increases the conditions of poverty for the workers, leading to unnecessary and harmful expenditures and involving the family budget to the detriment of actual needs. Investigations by the Institute of Nutrition of the Argentine Republic have disclosed data that are incontestable. It is therefore recommended that national commissions on nutrition be established in all countries in which they do not yet exist, these commissions to benefit by the counsel of the League of Nations. So far only two countries of the western hemisphere possess such organizations: the United States of America and the Argentine Republic, the former for more than fifty years. Both of these countries alone are at present able to train technicians in nutrition, experts in the fields of sociology and economics, physicians with specialized training in dietetics and the needed additional personnel. Besides it is necessary primarily to conduct surveys in order better to appraise the nutritional status of the population not merely as an isolated phenomenon but in connection with the general standards of living and the family budget. For example, in the republic of Argentina official information is available only for investigations conducted in Buenos Aires together with several individual investigations made by the national labor bureau.

NUTRITION AND WAGES

Unanimity of opinion prevailed among the delegates on the close connection between income and nutrition. The Instituto Nacional de la Nutrición of Argentina presented a report based on an extended investigation of 159 families of workers. The daily expenditures for food fluctuated between less than 10 centavos and 1.30 Argentine pesos. (An Argentine peso at present foreign exchange is worth between 25 and 30 cents of American money.) Families expending less than 60 centavos daily for food for every member of the family are pathetically undernourished (48 per cent of the 159 families were in this condition). The cost of 1,000 calories in Buenos Aires amounts to about 20 centavos; 37 per cent of the families investigated did not possess sufficient means to pay more than 50 centavos daily for food per member of the family. If the daily food bill is less than 60 centavos per member of the family, the nutrition is deficient in albumin. Calcium content is also generally insufficient, because not enough milk, cheese and vegetables are consumed. The same nutritional insufficiency obtains for iron and vitamins A and D. Insufficiency of vitamin C is less marked. These investigations prove that whenever the family income does not exceed 1 Argentine peso for each family member the minimal cost for a normal nutrition and a modest family budget are not met. Assuming a family of five as typical for Buenos Aires, from 1 to 2 pesos is required for each person daily. The minimum assumed is 1.20 pesos, equivalent to 180 pesos a month for a family of five. The experiences of the delegates for Argentina and the United States disclosed that the increase of a family budget to enable a more comfortable living does not assure correct family feeding because of the great ignorance regarding proper nutrition

prevailing in populations. Popular luncheons and restaurant service arranged in many countries largely failed to fulfil their purpose, because they were unable to solve a certain social problem and have in part been abandoned. On the other hand, as Professor Escudero pointed out, public agencies directed by a trained personnel are of great value. They are of social value in that they demonstrate standards of nutrition without trying to replace the family, as the restaurant service did, by furnishing only the fathers or several members of the family good meals. Nutrition problems may not disrupt family life. It is therefore of great importance to educate the public in matters of nutrition in order that the small income may be expended with the best returns. In organizations maintained in the United States and Argentina appropriate advisory service is also given. The delegates were unanimous in stressing the need not only of establishing departments of nutrition at the universities but of expanding instruction to meet these needs. All channels of publicity need to be utilized.

According to extensive biologic investigations made by Argentina's Institute of Nutrition, boiled milk is to be preferred to raw milk. It preserves all nutritious elements and at the same time is free from germs. Moreover, raw milk is about 25 per cent cheaper than after pasteurization. In countries in which pasteurized milk is compulsory, the price of milk is from 60 to 100 per cent higher than that of raw milk. Hence pasteurization should remain optional. Investigations of the chemical composition of human milk, conducted in the same institute, indicate that, contrary to general belief, human milk does not always constitute a superior food. It was found that the nutritive value of human milk may vary from 500 to 900 calories per liter. In the study of the connection between nutrition and the chemical constitution of human milk it was found that nourishment rich in albumins increased the albuminous content of the milk, and food rich in fats increased lacteal fats. Important medical and social considerations for the nutrition of pregnant women can be deduced from these observations.

In the conference discussions, attention was urgently directed to the extremely harmful effect of chronic alcoholism, biologically, morally and socially, on undernourished populations. Other toxic stimulants were also mentioned. It is known, for example, that the Indians of the South American Andes are undernourished and at the same time addicted to the use of coca and alcohol. To this is ascribed the great infant mortality, amounting to 50 per cent in the first year of life.

According to Professor Escudero's statements, one third of the population of Buenos Aires are in needy circumstances and about one fourth of those living in large cities in the United States, quoting the North American delegate. However, conditions in South America become tragic outside the large cities. In rural districts chronic hunger is often the common experience. This accounted for the physical inferiority of 500,000 recruits examined under Escudero's direction in 1932. However, drastic remedial measures have been taken in behalf of maternity welfare, preschool children, school children and so on, and these have been extended to benefit the provinces and the territorial areas. About 658,000 school children are now given food, in one form or another, during school hours. The training of specialists and of dietetic assistants is making considerable progress. It is planned to meet the needs also of the provinces and territories. Legal measures for the enlargement of the National Institute of Nutrition are likewise in preparation. The institute accepts students also from other Latin-American countries. The conference, in its final session, recommended that there be established in the individual countries national commissions on nutrition of a consultant character composed of experts on nutrition, economics, finance, labor and social problems, that university professorships in the fields of nutrition and dietetics be set up and that the duties of the assistants (dietistas) be enlarged so that they may supervise the normal nutrition of the population and cooperate with physicians in the feeding of sick persons. Furthermore, the importance of nutrition is to be taught in the schools and be steadily promoted through scientific publicity. Besides, research inquiries at regular intervals are necessary in order to determine the extent of proper nutrition in the populace. The conference also gave expression to its conviction of the seriousness of the problem of undernourishment in Latin-American countries and of the need of close cooperation between the countries affected as well as the need of continuous dissemination of information relating to nutrition. Regular meetings among the different Latin-American countries ought to be planned, in close cooperation with the League of Nations, the International Labor Board, the Oficina Sanitaria Panamericana and the United States of North America. For this purpose a center is to be organized in Buenos Aires which is to publicize knowledge regarding nutrition in the Latin-American countries.

BELGIUM

(From Our Regular Correspondent)

Dec. 8, 1939.

Meeting of Medical Societies of Brussels

This year, on the occasion of the international exposition at Liége, the medical societies of Brussels held their annual meeting in the same city, in the new quarters of the technical faculty. Heger-Gilbert, in discussing medical responsibility, pointed out that the medical profession, the most liberal of all professions, recognized the need a long time ago of imposing professional regulations on itself. Even now these self-imposed regulations vary little from those prescribed by the school of Hippocrates. In 1835 the French court of cassation affirmed the principle of the responsibility of physicians under civil law. At times judges had difficulty in establishing a medical offense by themselves. In their appraisal they took into account not only the facts which they were capable of discerning but also those reported to them by physicians charged by the court with the investigation. In this way judges arrived at a conviction on the question of ascertaining whether the facts charged constituted an offense; that is, negligence, imprudence or an incapacity contrary to standard medical practice. The victim or interested parties have to prove the commission of an unintentional error to be able to claim damages. Keeping in mind the conditions in which at times medicine is practiced, certain judges refrained on principle from entering into the scientific aspects of cases.

About 1890 the Liége court of appeal in a frequently quoted decision handed down the opinion that the law courts were not concerned with questions of diagnosis and treatment. In conformity with this law it is generally admitted that diagnostic mistakes, for example, do not constitute an offense by themselves but, if the mistakes arise from ignorance of definite medical facts, the mistakes are punishable. Recent French decisions view the physician's responsibility as one not limited to quasimisdemeanors but that legal relations between physician and patient enter into the picture of the contract for services, the contract arising from the fact that the physician engages himself to treat the patient and the latter engages himself to pay for the services.

The French court of cassation has recently laid down the principle of the contractual character of a physician's services. Generally, the question of medical responsibility is shaping itself more definitely every day and tends to impose on physicians heavier burdens. They ought therefore to familiarize

themselves with the extent of the obligations which they assume in practicing their profession.

René Goffin, discussing a national fund for the combating of cancer functions, said there were in Belgium six mutual unions of a national scope with 3,110,000 members, equivalent to 37.5 per cent of the Belgian population. Among these the most important is the Union Nationale de Fédération de Mutualités Syndicales et Socialistes de Belgique with 1,270,000 beneficiaries. Within this union the National Anticancer Fund was created in 1935 in connection with a university center. Its object is to fight cancer (1) by organizing a permanent service of cancer detection and treatment, (2) by the payment for surgical, x-ray and radium expenses, (3) by the control of patients for at least five years beginning from the time of treatment and (4) by granting special assistance to incurable persons. For each case of cancer discovered, the physician in charge prepares a dossier intended for the medical director of the Anticancer Fund, containing information of the civil status of the patient, his occupation, the organ affected, the diagnosis and the treatment of the case. The dossiers are arranged medically (according to organ) and regionally (demographically). A third classification analogous to that used by Professor Regaud in Paris controls the regular supervision of the patient. Once the cases have been examined and verified, the patient is directed to a cancer center, preference being given to the four official anticancer university centers. The physicians in charge are full-time staff members. Office hours for examining and treating patients are organized. Attention is aroused by means of leaflets, posters, press articles and public meetings. Every year the scientific and statistical results are brought to the attention of the physicians and administrators of the union. Meetings for disseminating information on the diagnosis and treatment of certain cancers are periodically organized. Following the American procedure, the fund sets forth the anatomopathologic relations existing in different parts of the country and plans to organize a register of bone tumors. The care of incurable patients has been approved voluntarily, though hesitantly, by the Anticancer Fund. It limits itself to special financial aid or, if necesary, to placing the patients in philanthropic institutions. The fund assumes full responsibility for the treatment and hospitalization of patients, by transmitting in advance its obligatory payments to the anticancer university centers. The fund meets all its expenditures solely and without government aid by paying in a part of the individual assessments, amounting to 0.45 franc a month for the heads of families and 0.35 for single persons. There is now under way a detailed inquiry on cancer morbidity affecting 500,000 persons. It is to serve scientific purposes and verify the present assessment rate for the central fund.

Raymond Barthelémy read a paper on occupational diseases of the skin. The clinical examination of occupational diseases of the skin by itself often permits recognition of the harmful agent through an objective medical examination, the quest of elementary lesions, the observations of syndromes that are often well characterized, and a well conducted oral examination. Tests have diagnostic and prognostic value but no longer represent the exclusive foundation of diagnosis, except the single Wassermann reaction in syphilis. "Pure" posttraumatic cutaneous diseases are not frequent except peritraumatic infectious complications on or near wounds caused by accidents suffered in work. Cutaneous posttraumatic carcinoma occurs especially in conjunction with an agent or a cancerigenic product. In that case cancer appears in an acute form and occurs at all ages. The majority of occupational cutaneous diseases consist of allergic eczema-shaped dermatitides, artificial eruptions of sensitization with all the caprices incident to sensitization diseases including variable and negative tests, and the more annoying problem of the unreliability of efforts at desensitization. Treatment ought to employ not only the procedures of specific desensitization, of shock and so on, but all the resources of dermatologic and general therapeutics. Industrial hygiene under medical control plays an essential part in the prevention and reduction of occupational diseases of the skin. The occupational character of these cutaneous diseases and their tests, treatment and prophylaxis are the business of trained dermatologists rather than that of theorists, lawyers or practitioners not trained in dermatology. In medicolegal matters and those of indemnification, a thorough study of each case is indispensable. Too often a common disease of the skin is ascribed by the patient and even by the physician to an undemonstrated occupational cause, while there are present plural sensitization, secondary undisclosed trades and nonoccupational irritations.

Georges Decharneux treated the coordination of medical activities for protection of the civilian population during the war. Among other unavoidable consequences of mobilization, the disruption of the customary medical services is one of the most important. In most countries of Europe a large number of physicians are now under military control. Some of those who have not been called have placed their services at the disposal of organizations like the Red Cross. The result is that entire regions may find themselves without medical aid. Dispensaries, sanatoriums, private clinics and hospitals see their medical and nursing personnel reduced. Mobilization of hygienists, bacteriologists and druggists has the same consequences. It is necessary, therefore, to anticipate the organization of medical service for war time. It seems that the mobilization of the medical personnel for civilian purposes, relieved of all military obligations, permits the best coordination of the different activities for securing public health in war time. It would be desirable in the interest of civilian health that the organization of medical services during war time be made the object of an international diplomatic conference with the purpose of working out an international convention designed to permit and facilitate the functioning of medical services for civilian populations.

Marriages

DANIEL H. CLARK, Quanah, Texas, to Miss Pauline Waterman, of Pierce, at Wharton, Nov. 12, 1939.

CHARLES A. GUTZMER to Miss Florence Kathryn McArty, both of Shelbyville, Ill., Dec. 31, 1939.

FRANK WHITNEY KELLEY, Dallas, Texas, to Miss Mary Ann Moyar, of Fort Worth, Dec. 2, 1939.

GWYNNE HAROLD LITTLE, Cornelia, Ga., to Miss Ora Horton Longshore at Atlanta, Dec. 1, 1939.

NORMAN M. O'FARRELL, San Diego, to Miss June Miller at Douglaston, N. Y., January 5.

SIDNEY JESSE HELLMAN, New York, to Miss Dorothy Gurkin, of Newark, N. J., Nov. 25, 1939.

ANGEL M. MARCHAND, San Juan, P. R., to Miss Margarita Pont, of Aibonito, Dec. 30, 1939.

AUBREY S. MCGEE to Miss Alice Morgan, both of San Angelo, Texas, Dec. 7, 1939.

PAUL W. EYLER, Bedford, Pa., to DR. MARGARET V. READ, of Catlett, Va., Sept. 9, 1939.

ROBERT BRADNER MERTZ to Miss Christine Mills, both of Tampa, Fla., Dec. 30, 1939.

JUAN MIMOSO, Caguas, P. R., to Miss Esperides Bayonet, of Juncos, Dec. 23, 1939.

JOHN J. FORTI to Miss Adeline Stitz, both of St. Louis, Oct. 18, 1939.

Deaths

Dr. William David Haggard ● eminent surgeon, of Nashville, Tenn., President of the American Medical Association in 1925-1926, one of the most popular physicians of the United States, died suddenly January 28 in Palm Beach, Fla., where he had gone for a brief vacation.

Dr. Haggard was born in Nashville, Sept. 28, 1872, the son of Dr. William David Haggard and Jane Douglas. He received his medical degree from the University of Tennessee Medical Department in 1893 and began practice in Nashville. In 1896 he became assistant professor of gynecology at the University of Tennessee Medical Department and in 1900 professor of gynecology and abdominal surgery. He served in the latter capacity until 1912, when he became professor of surgery and clinical surgery at Vanderbilt University School of Medicine. He held the positions of surgeon and first president of the staff of St. Thomas Hospital and was the visiting surgeon at Vanderbilt University Hospital. During the World War he served as major and later as lieutenant-colonel in the medical corps, acting as surgeon to Evacuation Hospital No. 1 at Toul, France, 1918-1919, and also as consultant in surgery at the Mesves Hospital Center in France. He also acted for a time as a member of the Advisory Board of the Division of Surgery in the Surgeon General's Office.

William David Haggard, M.D., 1872-1940

In the American Medical Association Dr. Haggard held many positions of importance, being a member of the House of Delegates in 1905 and 1906 and again in 1922. He was secretary of the Section on Surgery in 1898-1899 and 1909-1910 and chairman of the section in 1916-1917. He also served continuously as a member of the Council on Medical Education and Hospitals from 1912 to 1921.

He was instrumental in aiding the organization of the American College of Surgeons and served that organization for a number of years as regent, becoming president in 1933. He had been president of the Tennessee State Medical Association, secretary of the Southern Surgical Association and its president in 1917. His father was the first president and one of the founders of the Southern Surgical Association. Among other honors, Dr. Haggard had been president of the Nashville Academy of Medicine and of the Middle Tennessee Medical Association and a vice president of the Pan-American Medical Congress. He was also a member of the American Surgical Association, the Society of Clinical Surgery and the Southeastern Surgical Congress.

His contributions to medical literature included a book called "Surgery, Queen of the Arts and Other Papers and Addresses," published in 1935, and "The Romance of Medicine and Other Addresses," published in 1927, in addition to numerous scientific contributions covering particularly the surgery of appendicitis, goiter and carcinoma.

Dr. Haggard was a distinguished gentleman, a facile speaker and raconteur and widely recognized as a diplomat in medical affairs.

Samuel Gordon ● Philadelphia; Jefferson Medical College of Philadelphia, 1906; served successively as clinical assistant, instructor, demonstrator and associate in dermatology at the Temple University School of Medicine from 1920 to 1930; professor of dermatology at the Temple University School of Chiropody, 1928-1930; served in various capacities on the staffs of the Mount Sinai Hospital, Jefferson Medical College Hospital, Skin and Cancer Hospital and the Graduate Hospital of the University of Pennsylvania; chief medical examiner for local board number 39 in Philadelphia during the World War; commentator on dermatologic and syphilologic data in the biblical and postbiblical literature, the Talmud, Mishnah, Midrash and Targum; aged 65; died, Dec. 3, 1939, of coronary thrombosis.

Charles Walter Stone ● Bratenahl, Ohio; Johns Hopkins University School of Medicine, Baltimore, 1905; member of the House of Delegates of the American Medical Association from 1931 to 1937 and in 1939; appointed a member of the Committee on Distinguished Service Awards in 1939; past president of the Ohio State Medical Association and of the Cleveland Academy of Medicine; fellow of the American College of Physicians; member of the American Psychiatric Association and the Central Neuropsychiatric Association; associate clinical professor of nervous diseases at Western Reserve University School of Medicine, Cleveland; served during the World War; on the staffs of the City Hospital, St. Alexis Hospital and Lakeside Hospital, Cleveland; aged 60; died, Dec. 9, 1939.

Sydney Milton Cone, Pikesville, Md.; University of Pennsylvania Department of Medicine, Philadelphia, 1893; formerly associate professor of pathology at the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore; professor of pathology at the Baltimore Medical College, 1905-1916, and assistant in surgical pathology at the Johns Hopkins University School of Medicine, Baltimore, 1895-1899; member of the Medical and Chirurgical Faculty of Maryland; fellow of the American College of Surgeons; served during the World War; for many years consultant in orthopedic surgery at the Mount Sinai Hospital, Baltimore; aged 69; died, Dec. 19, 1939, of bronchopneumonia, arteriosclerosis and heart disease.

Robert Lewis ● New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1885; clinical professor emeritus of otolaryngology at his alma mater; an Affiliate Fellow of the American Medical Association; member of the American Laryngological, Rhinological and Otological Society; member and past president of the American Otological Society; fellow of the American College of Surgeons; consulting aural surgeon to the New York Eye and Ear Infirmary, Hospital for the Ruptured and Crippled and St. Francis Hospital, New York, Sea View Hospital, West Brighton, and Flushing (N. Y.) Hospital; aged 77; died, Dec. 20, 1939, of pneumonia.

Lee Vallette Parmley ● Little Rock, Ark.; University of Arkansas School of Medicine, Little Rock, 1916; member of the House of Delegates of the American Medical Association in 1936; chairman of the council of the Arkansas Medical Society and councilor of its eighth district; fellow of the American College of Surgeons; professor of traumatic surgery at his alma mater; served during the World War; formerly medical supervisor of the crippled children's division of the state department of public welfare; aged 47; traumatic surgeon to the Little Rock General Hospital, Baptist State Hospital and St. Vincent's Infirmary, where he died, Dec. 26, 1939, of hypertension.

John Ferguson, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1880; L.R.C.P., Edinburgh, Scotland, 1880; formerly associate professor of medicine at the

University of Toronto Faculty of Medicine; in 1916 president, and at various times served in other capacities with the Toronto Academy of Medicine; past president of the Ontario Medical Association and the Ontario Hospital Association; governor and for many years secretary of the board of the Toronto Western Hospital; formerly member of the board of editors of the *Canada Lancet and Practitioner;* aged 89; died, Dec. 7, 1939.

Ross Parker Cox ● Rome, Ga.; Jefferson Medical College of Philadelphia, 1889; past president of the Floyd County Medical Society; formerly executive secretary of the city school board; otolaryngologist to the Georgia School for the Deaf, Cave Springs, 1891-1937; for many years on the staff of the Harbin Hospital and the McCall Hospital; attending surgeon to the U. S. Veterans Bureau, 1919-1929; fellow of the American College of Surgeons; aged 76; died, Dec. 15, 1939, of arteriosclerosis.

Samuel Swift Boykin, Oakhill, Ala.; Medical College of Alabama, Mobile, 1896; member of the Medical Association of the State of Alabama; past president of the Wilcox County Medical Society; aged 71; died, Dec. 12, 1939, at a hospital at Selma of bronchopneumonia, influenza, myocarditis and hypertension.

Harvie Smith Baker, Norfolk, Va.; Medical College of Virginia, Richmond, 1904; member of the Medical Society of Virginia; president of the Norfolk County Medical Society; on the staffs of the Norfolk General and Leigh Memorial hospitals; aged 61; died, Dec. 26, 1939, of chronic myocarditis.

Ludwig Alexander Filips, New York; Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultasa, Budapest, Hungary, 1914; member of the Medical Society of the State of New York; aged 49; died, Dec. 23, 1939, of an overdose of narcotics, self administered.

Charles Louis Tegtmeier, Freeburg, Ill.; St. Louis College of Physicians and Surgeons, 1906; for many years mayor and village health officer; at one time district health supervisor for the state department of health; aged 62; died, Dec. 8, 1939, of cerebral hemorrhage.

Hillard Wood Otey, Memphis, Tenn.; University of Tennessee College of Medicine, Memphis, 1932; member of the Tennessee State Medical Association and of the Southeastern Surgical Congress; aged 32; died, Dec. 20, 1939, in the Baptist Hospital of pneumonia.

John Frederick Hill ● West Milton, Ohio; Toledo Medical College, 1911; past president of the Miami County Medical Society; served during the World War; on the staff of the Stouder Memorial Hospital, Troy; aged 54; died, Dec. 4, 1939, of angina pectoris.

Jean Paul Reinhardt, Fountain City, Wis.; Bellevue Hospital Medical College, New York, 1892; member of the State Medical Society of Wisconsin; at various times mayor; aged 69; died, Nov. 12, 1939, of a self inflicted stab wound of the heart.

Julian Paul Harrell, Brunswick, Ga.; University of Maryland School of Medicine, Baltimore, 1906; member of the Medical Association of Georgia; aged 58; died, Dec. 27, 1939, in Thomaston, of injuries received in an automobile accident.

Henry Allen Whitmarsh, Providence, R. I.; New York Homeopathic Medical College, New York, 1879; fellow of the American College of Surgeons; on the staff of the Homeopathic Hospital; aged 85; died, Dec. 2, 1939, of coronary thrombosis.

John Phillip Kanoky ● Kansas City, Mo.; Kansas City Medical College, 1881; an Affiliate Fellow of the American Medical Association; aged 80; died, Dec. 28, 1939, of injuries received when he was struck by an automobile.

Wallace Ellsworth Hoffman, New Hartford, Conn.; Hahnemann Medical College and Hospital, Chicago, 1905; member of the Connecticut State Medical Society; aged 60; died, Nov. 3, 1939, of coronary occlusion.

Arthur McKimmon Brown, Birmingham, Ala.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1891; aged 72; died, Dec. 4, 1939, of pulmonary edema, chronic nephritis and diabetes mellitus.

Elijah L. Curlee, Anniston, Ala.; University of the South Medical Department, Sewanee, Tenn., 1906; member of the Medical Association of the State of Alabama; aged 56; died, Dec. 14, 1939, of aortic insufficiency.

Charles Edward Greene, Owosso, Mich.; Long Island College Hospital, Brooklyn, 1890; formerly bank president, and state senator; aged 79; died, Dec. 21, 1939, of constricting chronic pericolitis with diverticulitis.

Edith Hamilton Gordon, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1915; medical adviser for women students at her alma mater; aged 54; died, Dec. 17, 1939, of coronary thrombosis.

Ralph Oliver Crume ● Fort Scott, Kan.; University Medical College of Kansas City, Mo., 1910; past president of the Bourbon County Medical Society; aged 56; died, Dec. 9, 1939, of coronary thrombosis.

William Ray Deemer, Fremont, Ohio; Toledo Medical College, 1893; served during the World War; aged 66; died, Dec. 16, 1939, in the Jackson Memorial Hospital, Miami, Fla., of coronary sclerosis.

John N. Crafton, Colliers, S. C.; University of Georgia Medical Department, Augusta, 1888; member of the South Carolina Medical Association; aged 80; died, Dec. 18, 1939, of mitral regurgitation.

Harry Arthur Johnson ● Fort Morgan, Colo.; University of Colorado School of Medicine, Denver, 1920; aged 47; died, Dec. 10, 1939, in St. Joseph's Hospital, Denver, of pancreatic necrosis.

William Franklin Akin, Branch, Ark.; Memphis (Tenn.) Hospital Medical College, 1904; member of the Arkansas Medical Society; aged 63; died, Nov. 13, 1939, of tuberculosis of the throat.

Warner Holt, Washington, D. C.; Rush Medical College, Chicago, 1880; formerly medical officer of the Bureau of Pensions; aged 82; died, Dec. 14, 1939, of diabetes mellitus and myocarditis.

Joseph W. Beauchamp, Bedford, Iowa; College of Physicians and Surgeons, Keokuk, 1876; member of the Iowa State Medical Society; aged 88; died, Nov. 23, 1939, of a basal skull fracture.

Burrell F. Forbis, Laconia, Ind.; Kentucky School of Medicine, Louisville, 1877; Bellevue Hospital Medical College, New York, 1881; aged 90; died, Dec. 19, 1939, of bronchopneumonia.

Emil Leonard Tompach ● Racine, Wis.; Rush Medical College, Chicago, 1894; formerly on the staff of St. Mary's Hospital; aged 70; died, Nov. 25, 1939, of chronic myocarditis.

John B. Ballinger ● Versailles, Ohio; Medical College of Ohio, Cincinnati, 1877; for many years a member of the board of education; aged 84; died, Dec. 17, 1939, of senility.

Leonhard Ernest Devron ● New Orleans; Tulane University of Louisiana School of Medicine, New Orleans, 1925; aged 38; died, Dec. 25, 1939, of cerebral hemorrhage.

Londus Brannon ● Joliet, Ill.; Medical College of Ohio, Cincinnati, 1882; aged 82; died, Dec. 13, 1939, in the Brannon Memorial Hospital, Manhattan, of pneumonia.

David Albert Hootman, Doswell, Va.; University of the South Medical Department, Sewanee, Tenn., 1895; aged 79; died, Dec. 15, 1939, of cerebral hemorrhage.

B. Ryland Hudnall ● Covington, Va.; Medical College of Virginia, Richmond, 1899; aged 64; died, Dec. 21, 1939, in the Covington General Hospital of pneumonia.

William Alexander Frazer, Minneapolis; University Medical College of Kansas City, Mo., 1886; aged 88; died, Nov. 9, 1939, of carcinoma of the prostate.

J. Richmond Duvall, Atlanta, Ga.; Eclectic Medical Institute, Cincinnati, 1896; aged 70; died, Dec. 8, 1939, in the Crawford Long Hospital of myocarditis.

Bernard Joseph Ferry, Baltimore; University of Maryland School of Medicine, Baltimore, 1916; aged 53; died, Dec. 13, 1939, of myeloid leukemia.

John Steward Bennett, Leilehua Junction, Hawaii; Hospital College of Medicine, Louisville, Ky., 1891; aged 81; died, Dec. 23, 1939, of pneumonia.

Elsie Ada Faust, Los Angeles; College of Physicians and Surgeons of San Francisco, 1908; aged 74; died, Nov. 24, 1939, of carcinoma of the bladder.

Gustav Charles Thieme, Baltimore; College of Physicians and Surgeons, Baltimore, 1896; aged 68; died, Nov. 5, 1939, of carcinoma of the rectum.

James C. Carter, Denison, Texas; Tennessee Medical College, Knoxville, 1899; aged 68; died, Dec. 9, 1939, of chronic endocarditis and nephritis.

Elkanah Zion, Knoxville, Tenn.; University of Maryland School of Medicine, Baltimore, 1888; aged 76; died, Dec. 6, 1939, of arteriosclerosis.

Victor Lincourt, Lac Megantic, Que., Canada; Laval University Faculty of Medicine, Quebec, 1911; aged 54; died, Dec. 1, 1939.

Correspondence

THE USE AND ABUSE OF BARBITURATES AND OTHER NARCOTICS

To the Editor:—There is need for a new word in anesthesia. I suggest anarchapnea—with the stress on the third syllable. It is derived from the Greek "archon," meaning governor or ruler, as in monarch; "anarchos," meaning ungoverned or anarchy, and "pneuma," breath or respiration, as in pneumonia, hyperpnea and apnea. Anarchapnea would therefore indicate the state, now frequently induced in obstetric delivery rooms and surgical operating rooms, in which the normal governor or control of respiration—its archon—is abolished. And the adjective anarchapnic would express the capacity of certain narcotic drugs, particularly the barbiturates when used in excess, to induce this state.

Such a word would force recognition of a feature of deep barbiturate narcosis which, although demonstrated by ample evidence both in clinic and laboratory (Clark, A. J.: *Edinburgh M. J.* **45**:829 [Dec.] 1938. Tatum, A. L.: *Physiol. Rev.* **19**:472 [Oct.] 1939), is now often ignored by clinicians and laboratory investigators. Morphine and most other narcotics depress respiration and decrease the volume of breathing by lowering the responsiveness of the respiratory center to the carbon dioxide produced in the tissues of the body and brought to the center by the blood. But even in deep morphine narcosis a high percentage of carbon dioxide administered by inhalation is still usually an effective stimulus. In deep barbiturate narcosis, on the contrary, the government of breathing by carbon dioxide appears to be entirely abolished. In this state of respiratory anarchy, breathing continues only under the abnormal and precarious stimulus of anoxemia (Marshall, E. K., Jr., and Rosenfeld, Morris: *J. Pharmacol. & Exper. Therap.* **57**:437 [Aug.] 1936).

My attention was first called to this characteristic of the barbiturates by noting that in the present flood of articles from maternity clinics with regard to neonatal asphyxia and resuscitation there are two opposite opinions. One group finds and reports that carbon dioxide diluted with oxygen is a highly effective agent for resuscitation. The other group, including among its chiefs some of the most eminent of American obstetricians, holds that carbon dioxide is of no value, that it may even be harmful and that oxygen alone should be used. And there can, I think, be no doubt that, under the quite different forms and degrees of narcosis and anesthesia employed in these two groups of clinics, their opinions, although diametrically opposed, are both correct.

Intrigued by this conflict, I have examined the publications of each group and find that without exception in all those clinics in which carbon dioxide is reported to be effective in the resuscitation of asphyxial babies either the barbiturates are not administered during labor or they are administered to the mothers only to the extent of moderate sedation. On the contrary, in all clinics where experience is strongly against the use of carbon dioxide for the resuscitation of babies the barbiturates are administered in doses sufficient to induce deep narcosis or even full anesthesia in the mothers and a near approach to anarchapnea in the babies. The conflict of opinion regarding the use of carbon dioxide as a resuscitant is thus accounted for.

Essentially the same conflict of opinion has developed in recent years among the anesthetists of the surgical operating room. One group still uses narcotics in moderation and relies on the inhalational anesthetics for full anesthesia. Members of this group find carbon dioxide to be a valuable auxiliary for rapid induction or termination of anesthesia and a powerful resuscitant in respiratory depression. The other group advocates and employs narcotics in such high dosage as almost, or even entirely, to eliminate any need for an additional volatile anesthetic. These physicians are skeptical of acapnia as a factor in functional depression (Seevers, M. H.; Stormont, R. T.; Hathaway, H. R., and Waters, R. M.: Respiratory Alkalosis During Anesthesia, THE JOURNAL, Dec. 9, 1939, p. 2131) and are opposed to the use of carbon dioxide as a resuscitant. As one of the leaders of this group recently told me, they find that, "when respiration begins to fail on the operating table, the worst thing that the anesthetist can do is to administer carbon dioxide even in a low percentage." For the form of anesthesia that each group employs, each is certainly correct in its attitude toward the use of carbon dioxide. For one it is beneficial; for the other it is harmful.

Between the two groups there is a corresponding difference in the need for oxygen. The lightly narcotized patients of the first group can breathe mere air (21 per cent oxygen) without serious danger. On the contrary, the deeply narcotized patients of the second group, if they are not to suffer from anoxia, must be supplied with a high percentage of oxygen. Indeed, deep narcotic anesthesia has become at all practicable only since oxygen became available in the operating room twenty odd years ago. In the lungs of a man breathing mere air the sum of carbon dioxide and oxygen together can never exceed 20 per cent of an atmosphere; as the amount of one gas goes up the other necessarily goes down. Without oxygen from a cylinder, patients in deep narcotic hypopnea would drown in their own carbon dioxide. Under such conditions inhalation of carbon dioxide intensifies the hypercapnia and anoxia. (The Greek word "kapnos" means smoke, or carbon dioxide; hence hypercapnia, excess of carbon dioxide, and acapnia, deficiency of carbon dioxide.)

Such anarchapnea, passing easily into narcotic asphyxia, is the exact opposite of the acapnial apnea which twenty years ago was the chief danger in anesthesia. Prior to 1920 any considerable degree of narcosis was seldom administered before inhalational anesthesia. Under "open ether" overbreathing often greatly decreased the carbon dioxide content of the blood, and when full anesthesia was then induced respiration sometimes failed. It lacked its normal stimulus, its archon. Hyperpnea induced acapnia, and acapnia induced apnea. The surgeon fumed and the anesthetist sweated. Sometimes the patient failed to breathe again; they knew not why. But when carbon dioxide was placed in the hands of the anesthetist such deaths ceased (Henderson, Yandell: Adventures in Respiration, Baltimore, Williams & Wilkins Company, 1938).

Certainly no one now would advocate a general return to "open ether" with no preliminary narcotic—a form of anesthesia which sometimes required the aid of two powerful orderlies to hold the struggling and overbreathing patient on the table during induction. The patient who now usually is brought to the operating table at least mildly narcotized is spared what was formerly one of the most distressing features of anesthesia. It is also true that with the increasing use of narcotics the need for carbon dioxide to counteract acapnia has decreased correspondingly. Times and methods change. Deep narcosis, depressed respiration and hypercapnia are now increasingly the fashion. But surely the anesthetist who knowingly abolishes the form of government which nature has provided for respiration and undertakes to replace it in some artificial manner assumes a heavy responsibility.

A third field in which the anarchapnic quality of the barbiturates and other narcotics is often ignored is that of animal experimentation. It is one of the best features of our laboratories that no matter how well established any doctrine may be —such as the control of respiration by carbon dioxide—each new generation of investigators reinvestigates it. Often these investigators find it erroneous, but sometimes it is the new evidence that is erroneous. Now it happens that in experiments on many functions other than respiration the production of full anesthesia once and for all by administration of a single dose of a drug has great advantages; for this purpose the barbiturates

are almost ideal. An occasional death among animals so narcotized is no great matter. But, when the barbiturates or other narcotics are used to the extent of deep anesthesia in experiments on respiration, false conclusions may result; for these drugs abolish one of the fundamental features of the function that is under study. The result is not the correction of error but the overthrow and negation of truth. Properly interpreted, all that much of the new evidence regarding respiration—particularly that on the chemical control of breathing—in many modern papers and books (e. g. Gesell, R.: *Physiol. Rev.* **5**:551 [Oct.] 1925. Harrison, T. R.: Failure of the Circulation, Baltimore, Williams & Wilkins Company, 1935) actually reveals is the anarchapnic effect of deep narcosis. In experiments on respiration general anesthesia of any kind should be avoided and only light sedation and local anesthesia should be used.

The whole matter comes to this: The barbiturates are generally excellent as sedatives but dangerous in full anesthetic dosage. Like other narcotics, but apparently in higher degree than any others, they depress, and in large dosage abolish, the natural government of respiration by carbon dioxide. Mere air is then inadequate to support life; for the excessive accumulation of carbon dioxide in the lungs and blood correspondingly excludes oxygen. In such anarchapnea inhalation or insufflation of oxygen is necessary to prevent asphyxia. The safe "single dose anesthetic" has not yet been discovered.

YANDELL HENDERSON, PH.D., New Haven, Conn.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

BRONCHIAL ASTHMA AND MOLDS

To the *Editor*:—A man aged 51, with bronchial asthma of the perennial type for about twenty years has been getting much worse the past five years. The onset was insidious. He has been a farmer all his life and there is no history of allergy on either side of his family. He has received cutaneous tests on two different occasions, has been on diets, has taken all the medicine usually prescribed for this condition and has had x-ray examinations. Although all the doctors thus far are agreed on the diagnosis, none of the medicine he has so far received has been of material benefit. He has been in several states for from two to three months or a time but without relief, although he has never been to Arizona or New Mexico. He has been in Denver without results. He has finally come to the point of being skeptical toward any suggestion of treatment of any kind, and if one has had asthma one can readily appreciate the patient's situation. The physical examination is essentially normal except for the chest, which shows moderate emphysema and the typical asthmatic appearances. He is married, with children, all of whom are quite healthy. The patient states that always during and for a short time after a rain he has felt much better, which I believe works just the opposite in the majority of cases of asthma that I have encountered. Also he has had cutaneous tests for practically everything but fungi. These I tested him for and found him to be sensitive to penicillium with about a 2 plus reaction. Would you suggest desensitizing him for this, and if not is there any further treatment one might possibly offer to this man?

E. C. Knight, M.D., Garwin, Iowa.

ANSWER.—Since the history does not particularly suggest bronchitis as a cause and since the asthmatic symptoms are virtually continuous the year round, an allergic cause of either widespread or close exposure suggests itself. Mold allergy is not an unlikely possibility in this case. It is true that the majority of individuals having allergic symptoms from inhaled mold spores present a distinct aggravation of their complaints during the summer months. That is due to the fact that the types of mold (Alternaria and so on) which cause a great part of such allergy are general atmospheric contaminants and arise from vegetation in the field. In some cases, however, sensitivity to certain types of molds, such as Aspergilli and Penicillia, shows but little seasonal variation. This is even more particularly true if the source of these fungi is close at hand, such as hay or straw or a damp moldy basement.

Allergy to the fungus to which reaction was obtained agrees pretty well with the history of this case. As far back as 1873 sensitivity to Penicillium was described (Blackley, C. H.: Experimental Researches on the Cause and Treatment of Catarrhus Aestivus, London, Baillère, Tindall & Cox, 1893). More extended observations and extension of the list of fungi causing allergy were developed in the last decade. Among the common fungi causing respiratory allergic manifestations may be included Alternaria, Hormodendra, Aspergilli, Penicillia, Moniliae, Trichodermae, Phomae, Fusariae, Mucors and smuts (Feinberg, S. M.: Asthma and Allergic Rhinitis from Molds, *Journal-Lancet* **57**:87 [March] 1937. Pratt, H. N.: Seasonal Aspects of Asthma and Hay Fever in New England with Special Reference to Sensitivity to Mold Spores, *New England J. Med.* **219**:782 [Nov. 17] 1938).

The inquirer does not mention the fungi which were used in testing and the technic of testing. In order to be fairly certain that important fungi have not been neglected, a comprehensive list of extracts of the types mentioned should be used. When the reactions have been ascertained it may be possible to modify the environmental source. If there is a damp basement with stored potatoes, apples and similar food creating a source of molds, it would be well to clean that up. It might be possible for the patient to delegate to some one else such duties which take him to the barn or hay loft, since the latter are usually prolific sources of fungi. If such precautions are not sufficient, desensitization treatment is indicated. Such materials are available at some biologic houses. The scheme of treatment is essentially the same as in pollen therapy. For more details and results of treatment it may be well to refer to the article in the *Journal-Lancet* quoted in the preceding paragraph.

REMOVAL OF IRON DEPOSITS FROM SKIN

To the *Editor*:—A young woman suffering from a recent acute dermatitis of the face with weeping, blistering and itching erythema was advised to apply often a solution of copperas. She was not told what strength to use or how long to use it. After one application, on one day only, it was discontinued. Several days later, when the acute dermatitis disappeared, she was found to be covered with freckle-like, iron rust deposits in the skin of the face and neck. These have not disappeared with the use of bleaching creams or ammoniated mercury. A small cantharidin blister over a bad area seems to remove the hemosiderin (?) but leaves an erythema. Is this condition known? What can be done to remove the spots? Is the use of copperas recognized in the treatment of open weeping cutaneous lesions?

M.D., Pennsylvania.

ANSWER.—Iron deposits in the skin from the use of wet dressings of copperas solution were first reported by William Allen Pusey (Brown Stains in the Skin from Wet Dressings of a Solution of Copperas, THE JOURNAL, Feb. 24, 1917, p. 627). Solutions of copperas, ferrous sulfate or green vitriol have long been advocated for the treatment of poison ivy dermatitis by McNair, a leading authority on poison ivy and its effects. They have undoubtedly been used in thousands of cases, yet the reports of lasting stains from iron deposits in the skin are few. By microscopic study of his case, Pusey demonstrated that the iron was deposited as minute granules massed in the subpapillary layer of the corium, a thin zone of clear tissue separating it from the basal layer of the epidermis. The stains had resulted from the use of many preparations in the treatment of a weeping dermatitis, among them a solution of lead acetate, and after that a solution of an ounce of ferrous sulfate in a gallon of vinegar. After the dermatitis had healed under treatment with ointments, the brown stains remained and persisted for a number of months. Two years later the stains were still present but were slowly becoming lighter

The paper is concluded with the following observation: "I am told that particles of iron in the eye usually in time completely disappear. These particles are too large to be removed by phagocytes, and if they disappear it must be by their gradual solution. This suggests the possibility of the ultimate disappearance of iron stains in the skin, but the course of this case thus far indicates that this disappearance, if it takes place, will be only after a very long time."

In the recent literature the most interesting contribution is that of R. L. Sutton Jr. (Pigmentation of the Skin Due to Iron [Copperas] Applied Locally, THE JOURNAL, Jan. 9, 1937, p. 112). He reports a case of impetigo treated by the application of a strong solution of ferrous sulfate in water and then by a solution of lead acetate. This caused a burning sensation and the skin turned dark and showed brown stains after the impetigo had healed. Sutton thinks that the probable sequence is a deposit of the ferrous salt on the superficial connective tissue exposed in the erosions, oxidation by the air to the ferric salt and the formation of a basic ferric acetate on contact of the lead acetate. Thus it is the combination of a ferrous solution applied while

an acetate solution is still on the skin, or the application of an acetate solution while the ferrous salt remains, that results in the insoluble iron deposit. He suggests that other combinations may have the same effect.

His attempts at therapy by dabbing with a 2 per cent solution of salicylic acid in 30 per cent alcohol and after this had failed the use of ultraviolet rays in a blistering dose were unavailing. C. E. Reyner's case, recently reported (Pigmentation Following the Use of Iron Salts, *Arch. Dermat. & Syph.* **40**:380 [Sept.] 1939), substantiates Sutton's idea that other solutions may react in the same way with the iron, for it resulted from application of ferrous sulfate solution followed by buttermilk. After three months' treatment with mild doses of ultraviolet rays the pigment began to fade and in another three months had disappeared. Whether the radiation deserves credit for this or the buttermilk produces a more easily soluble deposit of iron seems debatable.

The inquirer is to be congratulated on the fact that a cantharides blister removed the deposit. This can be interpreted to mean that the deposit of iron was very superficial in his case. Cantharides blisters do not scar and the resulting erythema is temporary.

There is no history of intracutaneous bleeding; therefore no hemosiderin is present. The use of copperas solutions on erosions or ulcers of the skin should be avoided. Other applications that do not stain are just as effective.

FOOD VALUE OF AVOCADO

To the Editor:—What are the food value and vitamin content of the avocado? Is there a difference in the content of the Texas and Florida varieties?

Leonard T. Carlson, M.D., Minneapolis.

ANSWER.—The chemical composition of the avocado appears to be highly variable, according to the variety and maturity of the fruit examined. The following values have been reported by Chatfield and McLaughlin (Proximate Composition of Fresh Fruits, U. S. D. A., Circular 50, 1931):

Variety	Moisture, %	Protein (N×6.25) %	Fat, %	Ash, %	Crude Fiber, %	Carbohydrates* %	Fuel Value per 100 Gm.
Fuerte	65.4	1.7	26.4	1.42	1.8	5.1	264.8
Guatemalan race	74.1	2.0	17.2	1.28	1.4	5.4	184.4
Mexican race	66.7	2.0	23.2	1.38	...	6.7	243.6
West Indian race	82.2	1.3	7.7	0.98	1.2	7.8	105.7

* By difference including crude fiber.

Similar difference in the fat content of the West Indian varieties, which are largely grown in Florida, and the Guatemalan and Central American varieties, grown in California, have been reported by other investigators.

Tilt and Winfield (*J. Home Economics* **20**:43, 1928) have reported the following mineral content for avocados grown in Florida: calcium 0.0370 per cent, phosphorus 0.0492 per cent, iron 0.0063 per cent, magnesium 0.0365 per cent.

Weatherby (California Avocado Association Year Book, 1935, p. 52) has reported an iron content of 0.0015 per cent for calavos and states that in experiments with anemic rats the iron of this fruit was highly effective in regenerating the hemoglobin content of the blood.

The reports of the vitamin content of avocados and avocado oil, which is now used extensively in the manufacture of cosmetics, are conflicting. However, there is evidence that the flesh of the fresh fruit contains small amounts of vitamins A and C. Bachrach and Smith (*Analyst* **63**:811, 1938) report that avocado oil as it appears in commerce is practically devoid of fat-soluble vitamins, including vitamin A.

ERYSIPELAS AND PSORIASIS

To the Editor:—A patient who has psoriasis has been told that if she should have erysipelas she would be cured of the psoriasis. Is this true? If not, is there an effective treatment of psoriasis?

M.D., Texas.

ANSWER.—Erysipelas as well as other disease processes may at times cause the involution of psoriatic lesions. It is uncertain that the favorable influence on the psoriasis is induced by the accompanying fever. Fever of itself cannot be depended on to accomplish a good result in the treatment of psoriasis. Certainly, in ordinary cases, such drastic procedure as fever therapy is not justified. Pregnancy too not infrequently causes psoriasis to improve. It is probable that such improvements of psoriasis are similar to those which sometimes follow a change in scenery or climate. Nonspecific therapeutic agents, such as foreign proteins, some metals, and the like, can be controlled more easily by the physicians and are more reliable.

The standard methods employed for the treatment of psoriasis yield satisfactory results in ordinary cases. In inveterate cases it is true that it is difficult to obtain resolution of the lesions. Even here persistence will usually accomplish a great deal of improvement.

There are a few general measures that are of value. The administration of arsenic in the form of solution of potassium arsenite may be used but should not be given to subjects with acute manifestations. Salicin by mouth and sodium salicylate by vein may be helpful and are of aid especially in conjunction with proper local therapy. Restriction of fats in the diet is advocated by a number of dermatologists.

It is beneficial to have warm soda baths to loosen the scales, which are then brushed off before application of local agents. The most effective of these is chrysarobin or one of its modifications. Somewhat weaker materials of this class are pyrogallic acid, the tars and ammoniated mercury. A hospital procedure introduced by Goeckerman and approved by many is the combined local use of crude coal tar and ultraviolet rays. Roentgen rays judiciously used are of distinct help at the beginning of treatment of a stubborn psoriasis. They are unnecessary in ordinary cases.

THREATENED ABORTION

To the Editor:—A primipara when three months pregnant developed cramps and bleeding. At the time some of the membranes projected through the cervix and I treated her expectantly. It is now a month since this episode (the pregnancy is four months) and she has continued to have slight bleeding during this entire month. The general condition is good, and an antuitrin-S test for pregnancy is negative (positive for pregnancy). Did I do right at the time to avoid emptying the uterus, in spite of the projecting membranes? Is it advisable to empty the uterus at present or is it preferable to wait, and how long, if the slight bleeding continues? If emptying the uterus is advisable, what procedure should be used? Is there danger of severe bleeding later in the pregnancy because of the separated membranes mentioned?

M.D., Massachusetts.

ANSWER.—It is unusual for a pregnancy to continue when the cervical canal has opened sufficiently to allow membranes to become visible. As a rule when cervical dilatation begins or following the rupture of the bag of waters the uterus ultimately empties itself completely or incompletely. In an incomplete abortion it is desirable to complete the process as soon as it is feasible, provided the patient has no evidences of infection.

The continuation of the bleeding may indicate that the gestation is not a normal one. In threatened abortions bleeding usually ceases after a time. In the presence of an abnormal embryo or a hydatidiform mole, bleeding will continue. At this time a roentgenogram should visualize a fetal skeleton. The patient should be subjected to a careful examination in order to determine the normality of the pregnancy. In the event that all the observations point to a normal pregnancy it can be allowed to continue, provided the bleeding does not become profuse. Separation of the membranes will not result in bleeding late in pregnancy unless it was associated with placenta praevia.

ACETYLSALICYLIC ACID AND NICOTINE

To the Editor:—Does acetylsalicylic acid bear a similar relation to nicotine in its soothing and quieting effects as acetylsalicylic acid bears to morphine in their chemically combined product diacetylmorphine, better known as heroin, the narcotic effects of which are more profound than either of its chemical constituents acetylsalicylic acid or morphine? Having had some experience in the management of prisoners and mindful of their free use of acetylsalicylic acid in connection with their almost universal use of cigarets, this inquiry does not seem to me irrelevant.

James L. Jefferies, M.D., Spartanburg, S. C.

ANSWER.—Heroin is made by the chemical action of acetyl chloride (not acetylsalicylic acid) on morphine, by which two hydroxyl groups are replaced by two acetyl groups, thus forming a double ester. Heroin is not easily destroyed in the body and is excreted almost entirely as such in the urine. Morphine, on the contrary, is mostly destroyed in the body. This probably accounts for the greater effects from the heroin.

Acetylsalicylic acid, as such, is not known to react immediately with nicotine to form a chemical compound and therefore does not in this way enhance the effect of nicotine.

SCIATIC HERNIA

To the Editor:—In Queries and Minor Notes (The Journal, Nov. 4, 1939, p. 1755) sciatic hernia is mentioned as containing only intestine. In the *American Medical Recorder* (4:597, 1821), is the report of an autopsy which showed a sciatic hernia containing part of the urinary bladder but no intestine. Should not the x-ray examination include a cystogram as well as a gastrointestinal examination?

Arthur S. Brackett, M.D., Bristol, Conn.

ANSWER.—Yes; a cystogram might be advisable but this type of case must be exceedingly rare.

Medical Examinations and Licensure

COMING EXAMINATIONS

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, January 27, page 348.

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 18-20. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ALASKA: Juneau, March 5. Sec., Dr. W. W. Council, Box 561, Juneau.

ARIZONA: *Basic Science.* Tucson, March 19. Sec., Dr. Robert L. Nugent, University of Arizona, Tucson.

ARKANSAS: *Basic Science.* May or June. Sec., Mr. Louis E. Gebauer, 701 Main St., Little Rock. *Medical* (Regular). Little Rock, June 6-7. Sec., Dr. D. L. Owens, Harrison. *Medical* (Eclectic). Little Rock, June 6-7. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Oral examination* (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California), San Francisco, April 17. *Written examination.* Los Angeles, Feb. 26-29. Sec., Dr. Charles B. Pinkham, 1020 N St., Sacramento.

CONNECTICUT: *Basic Science.* New Haven, Feb. 10. Chairman, Dr. Charles M. Bakewell, State Board of Healing Arts, 1893 Yale Station, New Haven. *Medical.* Hartford, March 12-13. Sec., Dr. T. P. Murdock, 147 W. Main St., Meriden. *Homeopathic.* Derby, March 12-13. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

DELAWARE: *Examination.* Dover, July 9-11. *Reciprocity.* Dover, July 16. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, April 22-23. *Medical.* Washington, May 13-14. Sec., Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: *Basic Science.* De Land, May 25. Sec., John F. Conn, De Land. *Medical.* Tampa, June 17-18. Sec., Dr. William M. Rowlett, Box 786, Tampa.

GEORGIA: Atlanta, June. Joint Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

IDAHO: Boise, April 2. Dir., Bureau of Occupational Licenses, Mr. H. B. Whittlesey, 235 State Capitol Bldg., Boise.

ILLINOIS: Chicago, April 2-4. Acting Superintendent of Registration, Mr. Lucien A. File, Springfield.

INDIANA: Indianapolis, June 18-20. Sec., Board of Medical Registration and Examination, Dr. J. W. Bowers, 301 State House, Indianapolis.

IOWA: *Medical.* Des Moines, March 4-6. *Basic Science.* Des Moines, April 9. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

KANSAS: Kansas City, June 18-19. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. Seventh St., Kansas City.

KENTUCKY: Louisville, June 5-7. Sec., Dr. A. T. McCormack, 620 S. Third St., Louisville.

MAINE: Portland, March 12-13. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Medical.* Baltimore, June 18-21. Sec., Dr. John T. O'Mara, 1213 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 18-19. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, March 12-14. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413-F State House, Boston.

MICHIGAN: Ann Arbor and Detroit, June 12-14. Sec., Dr. J. Earl McIntyre, 2024 Hollister Bldg., Lansing.

MISSISSIPPI: Jackson, June. Asst. Sec., Dr. R. N. Whitfield, Jackson.

MONTANA: *Reciprocity.* Helena, April 1. *Examination.* Helena, April 2-3. Sec., Dr. S. A. Cooney, 216 Power Block, Helena.

NEVADA: *Reciprocity with oral examination.* Carson City, Feb. 5. Sec., Dr. Frederick M. Anderson, 215 N. Carson St., Carson City.

NEW HAMPSHIRE: Concord, March 14-15. Sec., Dr. T. P. Burroughs, State House, Concord.

NEW JERSEY: Trenton, June 18-19. Sec., Dr. Earl S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, April 8-9. Sec., Dr. Le Grand Ward, 135 Sena Plaza, Santa Fe.

OHIO: *Reciprocity.* Columbus, April 2. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OREGON: *Basic Science.* Portland, Feb. 24. *Applications must be on file not later than Feb. 7.* Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PUERTO RICO: Santurce, March 5. Sec., Dr. O. Costa Mandry, Box 3854, Santurce.

TEXAS: San Antonio, June 20-22. Sec., Dr. T. J. Crowe, 918-20 Mercantile Bldg., Dallas.

VERMONT: Burlington, Feb. 13-15. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 18-20. Sec., Dr. J. W. Preston, 3015 Franklin Rd., Roanoke.

WEST VIRGINIA: Charleston, March 4-6. Sec., Public Health Council, Dr. Arthur E. McClue, State Capitol, Charleston.

WISCONSIN: *Basic Science.* Madison, April 6. Sec., Professor Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee.

WYOMING: Cheyenne, Feb. 5. Sec., Dr. M. C. Keith, Capitol Bldg., Cheyenne.

Alabama Reciprocity Report

Dr. J. N. Baker, secretary, Alabama State Board of Medical Examiners, reports twenty-six physicians licensed by reciprocity from June 30 through November 27. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine		(1938)	Arkansas
Emory University School of Medicine		(1935), (1937)	Georgia
Rush Medical College		(1937)	Wisconsin, (1938) Missouri
University of Louisville School of Medicine		(1938)	Kentucky
Louisiana State University School of Medicine		(1939)	Louisiana
University of Maryland School of Medicine and College of Physicians and Surgeons		(1938)	Maryland
Washington University School of Medicine		(1936, 2), (1937)	Missouri
Cornell University Medical College		(1930)	New York
University and Bellevue Hospital Medical College		(1933)	New York
University of Cincinnati College of Medicine		(1937)	Ohio
University of Oregon Medical School		(1937)	Oregon
Meharry Medical College		(1938, 2)	Tennessee
University of Tennessee College of Medicine		(1931)	W. Virginia, (1935) Mississippi, (1936, 2) Tennessee
Baylor University College of Medicine		(1936)	Texas, (1937) Louisiana
Medical College of Virginia		(1935)	Virginia
Marquette University School of Medicine		(1930)	Wisconsin
University of Toronto Faculty of Medicine		(1935)	Illinois

Idaho October Examination

Mr. Harry M. Rayner, Commissioner of Law Enforcement, reports the written examination held at Boise, Oct. 2-5, 1939. The examination covered twenty-two subjects and included 160 questions. An average of 75 per cent was required to pass. Sixteen candidates were examined, thirteen of whom passed and three failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1936) 78.8, (1939)	77, 79.8
Loyola University School of Medicine		(1937)	78
Rush Medical College		(1938)	81
The School of Medicine of the Division of Biological Sciences		(1935)	80.6
University of Maryland School of Medicine		(1937)	78.7
Harvard Medical School		(1934)	78
University of Nebraska College of Medicine		(1928) 75, (1938)	80
University of Pennsylvania School of Medicine		(1937)	79
University of Tennessee College of Medicine		(1938)	79.5
University of Virginia Department of Medicine		(1931)	78

School	FAILED	Year Grad.	Per Cent
Medizinische Fakultät der Universität Wien		(1929)	63
Universität Rostock Medizinische Fakultät, Rostock		(1936)	72
Regia Università degli Studi di Bologna. Facoltà di Medicina e Chirurgia		(1937)	65.5

Book Notices

The International Bulletin for Economics, Medical Research and Public Hygiene. W. L. Colze, Editor-in-Chief. Vol. A 40: Infantile Paralysis. Paper. Pp. 179. New York: National Foundation for Infantile Paralysis, Inc., 1939/1940.

This volume includes numerous papers by various authors and is an excellent summary of recent knowledge on infantile paralysis. The information in the opening statement by Basil O'Connor about the National Foundation for Infantile Paralysis was recently reviewed in an editorial in THE JOURNAL. In one of the papers Dr. Josephine B. Neal, of Columbia University College of Physicians and Surgeons, concludes that the seriousness of poliomyelitis is really overestimated when one considers that there are a large number of cases of the truly abortive type which cannot be accurately diagnosed but which confer immunity. Secondly, there is a large percentage of the nonparalytic type of case which can be diagnosed with a high degree of accuracy. If proper orthopedic treatment is carried out a large number of patients who develop paralysis recover with little or no disability. There is no fear of later unfortunate developments in poliomyelitis as there is in encephalitis. Dr. W. Lloyd Aycock, director of research of the Harvard Infantile Paralysis Commission, in discussing the epidemiology of poliomyelitis points out that the age distribution appears to be one of the most constant features of its epidemiology. While it is predominantly a disease of childhood, the incidence is low in infants under 1 year, probably because of a passive transmission of immune bodies to the young through the placenta. It seems clear, however, that the age distribution is primarily a function of contact with the virus. The virus is widespread, as shown by outbreaks in various countries and by neutralization tests. The limited occurrence of the paralytic disease probably lies in some variation in the disease agent or in the resistance of the individual exposed to the virus. The occurrence of the disease in individuals of a certain constitutional type suggests the endocrinologic nature of such an inherent susceptibility. In fact, clinical, epidemiologic and experimental evidence indicates that susceptibility to paralytic poliomyelitis lies in some inherent endocrinopathy which involves the economy of estrogenic substances. Dr. E. W. Schultz, of Stanford University, discusses the chemical prophylaxis of infantile paralysis, pointing out that at present the use of chemicals prophylactically is still a largely

unsolved problem from the point of view of its practical application in man. Dr. James D. Trask, of Yale University Medical School, discusses the viruses of poliomyelitis. The conception that poliomyelitis in man is a nasal disease rests on inadequate experimental data, and the natural port of entry of the disease in man is not yet known. Dr. Albert B. Sabin, of the Rockefeller Institute for Medical Research, discusses the port of entry of the virus, reaching practically the same conclusion. In discussing treatment Dr. C. E. Irwin, of the Georgia Warm Springs Foundation, points out that each case is an individual problem and must be treated as such. There is no positive evidence that one method has a decided advantage over the other. The after-care of the poliomyelitis patient varies from complete physiologic rest over prolonged periods to exercises in a medium of warm water as early after the acute attack as the physical status of the patient will allow. Treatment is discussed also by Dr. Charles L. Lowman, of Los Angeles, from the standpoint of under water exercises, by Dr. George E. Bennett, of Johns Hopkins University Medical School, and by Dr. Richard Kovacs, of the New York Polyclinic Medical School and Hospital. In this symposium also are papers by Pierre Lepine, of the Pasteur Institute in Paris; Sir Henry Gauvain, of London; Carl King, of Stockholm; C. Gomes d'Oliveira, of Lisbon, and by others in this country and abroad. The major epidemics of poliomyelitis from 1907 to 1938 are listed. New York has had more of this disease by far than any other state of the United States and much more than any foreign country. Sweden, which holds second place in the number of cases reported, has had less than half of the number of cases that New York has had. The first large epidemics were reported from the Scandinavian peninsula. These were soon followed by epidemics in the United States, where, with the contiguous provinces of Canada, more than half of the known cases of the world have been reported during the past twenty years. While there is apparently no racial immunity, at present most of the cases reported are in the Caucasian race. The infection has not yet become well established, at least in epidemic proportions, in South America, Mexico, Central America, Asia and Africa.

An Introduction to Medical Mycology. By George M. Lewis, M.D., Associate, and Assistant Attending Dermatologist, New York Post-Graduate Medical School and Hospital, Columbia University, New York, and Mary E. Hopper, M.S., Assistant in Mycology, Skin and Cancer Unit, New York Post-Graduate Medical School and Hospital, Columbia University. Cloth. Price, $5.50. Pp. 315, with 71 plates. Chicago: Year Book Publishers, Inc., 1939.

The strength of the binding, the quality of the paper, the legibility of the type and the beauty and clarity of the illustrations are evidence of the accomplishment of the publishers and printers in getting out this fine book at a remarkably low price. The photographs from which the illustrations are made are clearly the painstaking work of experts and artists in the field. The project of the authors is ambitious and they have creditably accomplished the major part of their task. The text, as it stands, will undoubtedly prove useful to those who wish to get a first glimpse of the subject of dermatologic mycology. Perhaps the omission of the discussions of the immunologic aspects and of experimental studies would have strengthened rather than weakened the presentation. The weaker chapters are chapter VI, on immunity and cutaneous sensitization, chapter VII, on allergic manifestations, chapter VIII, on immune bodies, chapter XXVI, on animal inoculation, chapter XXVII, on the technic of the passive transfer test, chapter XXX, on the trichophytin test and chapter XXXI, on the oidiomycin test. In contrast to the relative weaknesses of these immunologic and experimental discussions, the descriptions of the human dermatomycoses and of the mycologic characteristics of various fungi are so beautifully illustrated and admirably presented that it seems rather a pity that the authors did not confine themselves to these practically more important phases of their subject. In the practical, clinical chapters there seems to be one major omission. At no point is the physician given entirely adequate directions on how to remove the various types of tissues and material in order, in each instance, to have the greatest possible prospects for success in demonstrating any fungi that may be present. In expressing their recommendations for prophylaxis of ringworm and athlete's foot (pp. 121 to 123) the authors express views which are, to say the least, at variance with those of the majority of experienced dermatologists. The greatest number of experts recognize today that the particular fungi concerned are so ubiquitous and so continuously with all of us that the development of attacks of active ringworm disease of the feet or groin is usually not so much a matter of exposure to new, outside sources of contagion as it is a question of local and individual variations in susceptibility. Thus the exhaustive prophylactic measures described in this book are not only commonly unnecessary but surely often actually harmful in producing cutaneous irritations and exaggerated, morbid fears regarding transmission and contagion. Fortunately the complicated ritual recommended will rarely if ever be executed in its entirety. On the whole, this book should be of value to the student or physician beginning the study of mycology or dermatology. If it meets with the success it merits it will presumably go into further editions, in which case the weak points referred to will undoubtedly be eradicated.

Pictorial Midwifery: An Atlas of Midwifery for Pupil Midwives. By Sir Comyns Berkeley, M.A., M.C., M.D., Consulting Obstetric and Gynecological Surgeon to the Middlesex Hospital, London. Third edition. Cloth. Price, $3. Pp. 166, with 245 illustrations. Baltimore: William Wood & Company, 1939.

For many years Sir Comyns Berkeley has been a stimulating contributor, both journalistic and textual, to obstetric and gynecologic literature. His numerous articles are always genuinely informative and widely read. His textbooks on obstetrics and gynecology are looked on as standard works both in his country and abroad, as for example his well known volume entitled "Obstetrics by Ten Teachers," now in its seventh edition, 1938, and his equally well known textbook "Diseases of Women," sixth edition, 1937. It has been said that the supreme test of an author's art may be estimated in a study of his revisions, and Sir Berkeley's skill in this regard is amply demonstrated in the present edition of his deservedly popular work for midwives and pupils of midwifery. In this edition the author, as stated in the preface, has in many places revised the material and rewritten it completely in others. The book has been prepared especially for midwives and midwifery students. The author properly believes that a midwife who wishes to practice her calling with safety to her patients should have a complete knowledge of her subject, including the anatomy, physiology and pathology of pregnancy as well as of labor and the puerperium. These various aspects of the subject are embodied in the present volume, the illustrations taking the form of a pictorial review, each one being elucidated by concisely clear legends. The book is composed of five special sections dealing in a systematic manner with anatomy, physiology, pregnancy—together with its complications—labor with its mechanism, symptoms and management. A chapter or section is devoted to the newborn child and its care and, finally, there is a description of appliances and instruments used in ordinary obstetric operations. The book will prove of great value not only to the midwife, for whom it has been designed particularly, but to the general practitioner of medicine as well.

Die Tuberkulose des Menschen: Ein Buch für die Praxis. Herausgegeben von Prof. Dr. Hanns Alexander et al. Paper. Price, 47 marks. Pp. 490, with 216 illustrations. Leipzig: Johann Ambrosius Barth, 1939.

This well printed volume in German is a practical textbook on tuberculosis aiming to disclose to the practitioner the nature of tuberculosis in man. It furthers the concept that tuberculosis should be recognized early in its course and that one is dealing from the beginning with a disease of the entire body. A careful clinical analysis of the individual is requisite in each case. Pathologic anatomy and pathogenesis are described completely, since this is the foundation for a satisfactory understanding of the disease in man. On this basis the diagnosis and treatment of the early forms are developed and the discovery and treatment of tuberculosis of the individual organs is made clear. Since the book is intended for practice, problems not yet clarified have been left in the background. The text is a compilation by men entirely qualified by experience as authors and students of tuberculosis to present the chapters assigned to them. Thus, Schröder presents an interesting introductory history of tuberculosis, while Huebschmann and Schulte-Tigges cover the chapter on pathogenesis, histogenesis and pathologic anatomy and on the tubercle bacillus, which concludes part I. Part II covers tuberculosis as

a general disease, the significance of blood studies, combating tuberculosis as a community disease, and finally therapy (general, medicinal, chemical and specific). Part III considers essentially organ tuberculosis: pulmonary, surgical, of the upper respiratory tract including nasal and oral, gastrointestinal, urogenital, osseous and joint, nervous, cutaneous, of the sense organs and finally glandular and of the organs of internal secretion. Ample references conclude each chapter, and the references are primarily to the German literature and textbooks. A workable index concludes the volume. The fact that it is printed in German will limit its usefulness in American and English schools of medicine and libraries, since there are a number of English textbooks that have no more shortcomings than this volume. It must be admitted, however, that the volume fits the need mainly of the elementary student of medicine and tuberculosis rather than of the specialist in tuberculosis. It may be desirable reading also for the general practitioner who is conversant with German and who wishes to bring his general reading on tuberculosis down to date in a continental (German) fashion, so to speak. It must be admitted that the volume was written primarily for the German student, which may account for the bibliography almost restricted to German publications. The volume is simple and easily read, the numerous illustrations aid greatly in clarifying the text matter, and methods are presented in a modern manner.

Archiv und Atlas der normalen und pathologischen Anatomie in typischen Röntgenbildern. Das Brustbein und seine Gelenke normale und krankhafte Befunde, dargestellt zum Teil mittels neuer röntgenologischer Methoden. Von E. A. Zimmer. Fortschritte auf dem Gebiete der Röntgenstrahlen, Ergänzungsband LVIII, herausgegeben von Prof. Dr. Grashey. Paper. Price, 13 marks. Pp. 70, with 81 illustrations. Leipzig: Georg Thieme, 1939.

This most interesting book constitutes the fifty-eighth supplementary volume of the *Fortschritte auf dem Gebiete der Röntgenstrahlen*. The new technic referred to for the demonstration of the sternum is shown to be very efficient. It involves making two exposures on the same film, the film being held as close as possible to the chest wall anteriorly and the tube being shifted from a point on one side of the spine to a corresponding point on the other side. For the upper part of the sternum and the sternoclavicular articulations the shift is no more than that made for stereoscopic films, so that the central ray just grazes the lateral border of the spine in each exposure. To study the lower part of the sternum the shift is a good deal greater, the central ray entering at the posterior axillary line on each side. It is emphasized that the two exposures are made on the same film. Furthermore, the focus of the tube is brought as close as possible to the posterior chest wall. The result is a striking obliteration of all structures except the sternum, which it is desired to delineate. The author then describes the development of the sternum, variations within the normal, the function of the sternum and then in detail the numerous variations and anomalies and injuries and diseases which involve the sternum and its joints.

Hydrophthalmia or Congenital Glaucoma: Its Causes, Treatment, and Outlook. By J. Ringland Anderson, M.C., M.D., B.S., Ophthalmic Surgeon to the Alfred Hospital, Melbourne. With a foreword by Sir John Herbert Parsons, C.B.E., D.Sc., F.R.C.S. Published for the British Journal of Ophthalmology. Cloth. Price, $7. Pp. 377, with 116 illustrations. Cambridge: University Press; New York: Macmillan Company, 1939.

The foreword to this extensive treatise, written by J. Herbert Parsons, elucidates in a concise manner the scope and characterization of its contents. "The last monograph on this subject was published in 1897 by Dr. Edmund L. Gros, under the title Etude sur l'hydrophthalmie ou glaucome infantile, and was an excellent outline of our knowledge to that date. The present is a much more extensive treatise and will long remain authoritative. In dealing with a disease of such obscure etiology, in which, however, congenital malformations are a prominent factor, the scientific approach must be by way of pathology and comparative anatomy. In both of these respects the treatment here is exhaustive and beautifully illustrated. Dr. Anderson has taken advantage of his special opportunities to obtain specimens from Australian fauna—Ornithorhyncus, Echidna, Pseudochirus, Dasyurus—and to describe the condition of the angle of the anterior chamber in them and in Tarsius. This is in itself a valuable contribution to comparative anatomy. The remarkable association of hydrophthalmia with neurofibromatosis, facial nevi and other angiomatous conditions is fully discussed. To the practicing ophthalmic surgeon the most important part of the book is the description of all the different methods of operative treatment which have been tried, with a thorough analysis of the results obtained by various surgeons. One cannot help regretting that the survey shows no signs of indicating in the treatment of hydrophthalmia any such hopeful improvements in operative technic as were beginning to bear fruit when Dr. Anderson's book on detachment of the retina was published and which have proved so successful." In addition it should be mentioned that Anderson has obtained answers from 346 ophthalmologists throughout the world to 874 questionnaires. The type of questionnaire is illustrated in the opening of the introduction, where the following is set forth:

Consulting Room, Melbourne, 1933.

Father of a 9 year old boy blind from congenital glaucoma. Grahame had a trephine operation on each eye when he was a year old. Would he have had a better chance without such treatment?

Surgeon.—I do not know.

Father.—Do any untreated patients with this disease retain sufficient vision to enable them to earn their living for a few years?

Surgeon.—I do not know.

Father.—If he marries will his children be affected?

Surgeon.—I do not know.

Each of the eight chapters is ended by conclusions and a list of references which leaves no hiatus in the reader's mind. An ample index completes the book. In spite of Anderson's final word that "the future of patients with hydrophthalmia is dark," the library of every physician interested in the eye cannot afford to be without this excellent monograph.

Cancer Handbook of the Tumor Clinic, Stanford University School of Medicine. Edited by Eric Liljencrantz, M.D., Chief of Tumor Clinic, Stanford University School of Medicine, San Francisco. Cloth. Price, $3. Pp. 114, with 50 illustrations. Stanford University, California: Stanford University Press; London: Oxford University Press, 1939.

This treatise is a concise practical handbook designed as a graduate course. It presents the methods practiced in the tumor clinic of Stanford University. The booklet is a revision of a syllabus on the diagnosis and treatment of cancer originally published in 1937. Chapters on the cancer problem and on radiation therapy are followed by discussions of cancer affecting various organs. The treatise contains much interesting information. The booklet is nicely compiled and the material well arranged. The bibliography might have been selected with better care and more critically. The author has succeeded in presenting some useful information on cancer in the brief space of 100 pages. Necessarily a comprehensive treatment of any of the subjects is impossible in attempting to cover so large a subject in such a brief space.

Les tuberculoses atypiques: Fréquence, polymorphisme, intérêt thérapeutique. Par André Jacquelin, médecin de l'Hôpital Necker. Préface du Pr F. Bezançon. Paper. Price, 70 francs. Pp. 356, with 20 illustrations. Paris: Masson & Cie, 1939.

André Jacquelin and the Necker Hospital (where Laënnec worked) need no introduction to tuberculosis or to medicine; and a preface by Bezançon is a seal which even a reviewer could hardly belittle, had he a mind to. Of course, it is regretted that all of us cannot read French fluently, but those who can do so only with the aid of a dictionary and who are interested in tuberculosis will find this volume (primarily a textbook) on the atypical types of tuberculosis most interesting and enlightening. The book is exhaustive and comprehensive and is well presented, even though one might feel the lack of illustrations usually found in such volumes in English and German nowadays. The easy reading of the subject matter, however, amply makes up for the lack. The importance of the constitution and temperament of the individual in playing a part in the morbid process leads to the observance of the atypical types in tuberculosis, and Jacquelin deals with these in a primarily clinical fashion. Thus after considering the general pathogenesis in the form of generalities, tuberculin hyperallergy, bacillary toxemia and bacillemia in the first chapter, he takes up the clinical forms and diagnosis of the pulmonary and pleural atypical conditions and the rhinotracheal bronchitides in the second and

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third chapters. The succeeding three chapters respectively give detailed consideration to the atypical forms of febrile, general deficiency dysendocrine, neuropsychic and hepatodigestive syndromes after covering tuberculous asthma and tuberculous rheumatism. Diagnostic intricacies and the principles and modes of medication are considered in a modern manner in the seventh and eighth chapters. A final chapter of conclusions of a personal nature, resulting from an exhaustive experience, is put briefly but pointedly in two and a half pages.

This volume is written by a clinician for clinicians. Although the subject might appear to be indefinite from the title, a feeling of confidence gratifies the reader that Jacquelin has brought the subject matter together in practical fashion for the clinician so that it is workable clinically and so that treatment can be guided more ably with precision and detail. The volume possesses a page by page footed bibliography which is replete with references authenticating statements. It can be recommended without reserve to all who read French and who are concerned with internal medicine and especially in the diagnosis and treatment of tuberculosis and allied conditions of confusing nature.

The Neurogenic Bladder. By Frederick C. McLellan, M.S., M.D., Instructor in Surgery, University of Michigan Medical School, Ann Arbor, Michigan. Cloth. Price, $4. Pp. 206, with 9 illustrations. Springfield, Illinois, & Baltimore: Charles C. Thomas, 1939.

Probably no subject in medicine is in such a state of confusion and so poorly understood as neurogenic disease of the bladder. In this monograph the author has attempted to lay a foundation on which the subject of the neurogenic bladder might be more rationally studied. In this attempt he has succeeded. The work is based on the study of 500 cystometrograms, which the author has made in cases of various types of neurogenic and nonneurogenic disturbances of the bladder. From a correlation of the clinical and cystometrographic data a simple classification of the various neurogenic diseases of the bladder has been made. Whether this classification will stand the test of time is questionable but not important. Its value lies in the fact that for the present it clarifies the subject sufficiently to give physicians a standard of measurement and a common language with which to discuss the condition. As the author intimates in the introduction, as such observations by various observers are made in the future, present opinions may require revision. Physicians interested in this subject will enjoy the book. In addition to the original work and observations it contains an excellent summary of present accepted opinions concerning the neuro-anatomy and neurophysiology of the bladder and the physiology of micturition. Illustrative charts of typical cystometrograms are appended.

Veröffentlichungen aus der Konstitutions- und Wehrpathologie. Herausgegeben von L. Aschoff, W. Ceelen, W. Koch, P. Schürmann. Geleitet von W. Koch. Heft 44. Band X, Heft 2: Über den Status varicosus und die Bedeutung der Konstitution für die Entstehung der Varizen insbesondere im Pfortaderbereich zugleich Bericht über eine eigenartige Form der Splenomegalie. Von Dr. med. Karl-Heinz Kirschner. Paper. Price, 10 marks. Pp. 148, with 2 illustrations. Jena: Gustav Fischer, 1939.

This monograph offers a complete bibliography of the varicosities in the portal system. The author adds a carefully described case with its clinical history and the conditions found at necropsy. A huge splenomegaly was associated with the abnormal dilatations of the portal vein. The student of the peripheral vascular system will find a well organized assembly of curious pathologic manifestations which seldom obtain clinical significance.

Circulatory Diseases of the Extremities. By John Homans, M.D., Clinical Professor of Surgery, Harvard Medical School, Boston. Cloth. Price, $4.50. Pp. 330, with 45 illustrations. New York: Macmillan Company, 1939.

This book justifies its title because it considers diseases of the peripheral veins, arteries and lymph vessels. The quality of the presentation varies considerably, apparently with the author's knowledge of the subject. It is natural that the discussions of surgery are more informative than are the discussions of medical aspects, since the author is a surgeon. Two substantial objections are apparent. The bibliography is incomplete and in some places there is lack of specific instruction relative to treatment and tests, which detracts from the practical value of the volume. Nevertheless the book represents a substantial contribution to the presentation of the subjects with which it deals.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Act: Acute Dilatation of Heart Due to Strain.—In the course of his employment, which consisted principally of unloading and handling sacks of feed and grain weighing from 100 to 120 pounds, the claimant, a man aged 37 and in good health, felt a severe chest pain in the region of his heart. He became short of breath, coughed violently and was unable to continue work. His condition grew worse and during the evening of the same day he was taken to a physician. A fluoroscopic examination revealed an inch and a half dilatation of the left side of the heart. Following absolute rest and medical treatment administered by the physician over several months, the dilatation completely disappeared. There were no heart lesions. The claimant eventually recovered fully but was admonished to refrain from heavy work in the future. He subsequently instituted proceedings under the workmen's compensation act of West Virginia. From rulings of the workmen's compensation appeal board and the compensation commissioner that the disability suffered by him was not due to injury received in the course of and resulting from employment, the claimant appealed to the Supreme Court of Appeals of West Virginia.

The sole question to be determined on appeal was whether or not the dilatation was an injury within the meaning of the West Virginia workmen's compensation act. The claimant contended that the dilatation was precipitated by the lifting of a particular sack of grain. It was then, he argued, that he felt a pain over his heart. The physician who treated him, the only medical witness in the case, testified that the dilatation was the result of a "little unusual lift" or strain due to work on the particular day. This conclusion was based, in part, he said, on the fact that there was no heart lesion. In the opinion of the Supreme Court of Appeals, the claimant's disability was the result of a definite, isolated, fortuitous occurrence and was a "personal injury" within the meaning of the compensation act. Disease that is attributable to a specific and definite event arising in the course of, and resulting from, the employment is compensable under the compensation act of West Virginia, the court said.

The claimant in this case was a young man, 37 years of age and in good health prior to the injury. In the lifting of a particular sack he suffered severe pain and was thereby rendered unable to do further work. There was no evidence, lay or medical, of a chronic heart condition; the fact that he fully recovered indicated that he had no preexisting heart ailment. The total temporary disability was therefore due to an acute dilatation of a normal heart.

The court, therefore, directed the payment of compensation to the claimant.—*Gilbert v. State Compensation Commissioner (W. Va.), 1 S. E. (2d) 167.*

Medical Colleges: Mistake as to Previous Study a Bar to Student's Suit to Compel Issuance of Degree.—The plaintiff instituted suit to compel Duke University to award him the degrees of doctor of medicine and of bachelor of science in medicine. The evidence disclosed that the university impliedly contracted with him that when he had furnished it satisfactory evidence of having completed the courses required in the first and second years of a "class A medical school" he would be admitted as a third year student in Duke University School of Medicine and that when he had completed the courses required in the third and fourth years of the university's school of medicine he would then be awarded a degree of doctor of medicine and on doing certain extension work he would be awarded the further degree of bachelor of science in medicine. The plaintiff furnished, or caused to be furnished, to the university what purported to be a certificate from a medical school as to work completed by him in the first and second years of its medical course, on the strength of which he was admitted to Duke University School of Medicine. Subsequent to his admission there the plaintiff completed the work and successfully passed examinations on all subjects required in the third and fourth

years' work and successfully performed the extension work required for the degree of bachelor of science in medicine.

Subsequently it developed that while the certificate furnished by the plaintiff as to his work in the first and second years of his medical course contained the statement that he had successfully passed examinations in bacteriology and physiology, that he had been recommended for the third year class and that he had been granted an honorable discharge from the school, the fact was that the plaintiff had been conditioned in bacteriology and had failed in physiology and had been dropped from the school. The plaintiff testified that he did not know at the time he furnished or caused to be furnished the purported certificate that it contained the false statements and that he did not learn of such falsity until after he had completed the work of the third and fourth years in Duke University School of Medicine. The evidence also disclosed that the university itself did not learn that the statements were false until after the plaintiff had completed the work referred to. On these facts the trial court entered a judgment for the university, and the plaintiff appealed to the Supreme Court of North Carolina.

Before specific performance of a contract can be enforced, said the Supreme Court, it must be established that the contract was procured fairly and openly. Any misrepresentation in its procurement will be a bar to enforcement, and the fact that such misrepresentations were innocently or ignorantly made does not alter the result. The misrepresentations in the present case, even though innocently or ignorantly made, were a bar, in the opinion of the court, to the plaintiff's suit for the specific performance of a contract predicated on them.

The plaintiff urged his right to receive the degree on evidence tending to show that after the degrees sought had been denied him by the university he studied and successfully passed examinations in bacteriology at George Washington University and in physiology at the University of Michigan and that he did this on the advice of the dean of the School of Medicine of Duke University, thinking that when he had done so the university would then grant him the degrees in question. But, said the Supreme Court, the evidence failed to establish a contract on the part of the university to award the degrees sought if the plaintiff subsequently furnished evidence of having satisfactorily passed examinations on the subjects on which he had failed prior to admission to the defendant university. The Supreme Court accordingly affirmed the judgment of the lower court in favor of Duke University.—*Pate v. Duke University (N. C.), 1 S. E. (2d) 127.*

Blindness: Constitutionality of Act for Relief of Blind.—The plaintiffs, ninety in number, filed suit against Christian County, Ill., to collect unpaid blind relief benefits which, they claimed, were due them under an act passed by the Illinois legislature. The county filed a motion to dismiss the complaint on the ground that the act for relief of the blind was unconstitutional, that none of the plaintiffs had any vested right to the fund and had no right at law to sue for the same but that the provisions of the act were for a gift only, the payment of which was voluntary and not mandatory. The trial court entered a decree for the plaintiffs and the county appealed to the Supreme Court of Illinois.

The county contended, among other things, that, because the blind relief act empowered the examiner of the blind to say whether an applicant was or was not blind, such discretion constituted an unlawful delegation of legislative power. The Supreme Court, however, was unable to accept this view. The question whether an applicant is or is not blind, the court pointed out, must be determined by some competent authority. The legislature imposed that duty on the examiner, and the relief act in that respect is not different from many other statutes of Illinois where, in the administration of the law, other professions are called on to determine facts essential to the proper administration of an act. The county further argued that because the blind relief act, prior to 1935, contained no definition of blindness the examiner was permitted to determine that matter in his own discretion. But, the court said, blindness is a term known to the average person of ordinary intelligence, and where such a term is used it needs no further definition on the part of the legislature. The court, furthermore, did not consider the payments made under the act as a gift or bounty. Such payments have a tendency to prevent the necessity for the erection of homes for the blind in those cases in which the subject is unable to gain a livelihood. The maintenance and care of the blind falls in the same class of duties resting on counties as the support of dependent children and the support of paupers. And, the court continued, where a pension has accrued the beneficiaries have a vested right therein.

In the opinion of the court, the act was valid and the decree of the trial court to that effect was affirmed.—*Proffitt v. Christian County (Ill.), 19 N. E. (2d) 345.*

Malpractice: Retroactive Effect of Statute of Limitations.—The defendant, a physician, operated on the plaintiff in March 1926 for gallstones and for hernia. For ten years thereafter the patient suffered pains in the region of the gallbladder. A second operation performed in March 1936, apparently by another physician, revealed the presence of a pus-soaked gauze sponge. Alleging that the gauze had been left in the gallbladder or the cavity enclosing it by the defendant in March 1926, the patient brought suit for malpractice. Holding that the cause of action was barred by the statute of limitations, the trial court dismissed the case. The patient then appealed to the Supreme Court of Arkansas.

A law was enacted in Arkansas in 1935 providing that:

> Hereafter all actions of contract or tort for mal-practice, error, mistake, or failure to treat or cure, against physicians, surgeons, dentists, hospitals, and sanitaria, shall be commenced within three years after the cause of action accrues. The time of the accrual of the cause of action shall be the date of the wrongful act complained of and no other time.

Prior to the enactment of the 1935 law a person wronged by malpractice had three years from the time of the discovery of the wrong in which to bring suit. The patient contended that she had three years from the date of the passage of the 1935 act to bring suit. A retroactive application of the act, she argued, would take away a subsisting vested right in her, would cut off all remedy and deprive her of her cause of action. But, said the Supreme Court, the 1935 law did not take away any subsisting vested rights and did not deprive the patient of her cause of action. The 1935 law contained no emergency clause; it became effective ninety days after the adjournment of the session of the general assembly at which it was enacted. The patient then had ninety days after the passage of the act in which she might have brought her suit.

It is a general rule, continued the court, that statutes of limitation are to be applied to all cases thereafter brought without any regard to when the cause of action arose, subject to the rule that such statutes cannot be used to cut off causes of action without reasonable time being given in which to bring suit. In this case the patient had ninety days after the passage of the act, and whether that period was a reasonable time was a question for the legislature to determine. There was no allegation in the complaint, the court pointed out, that there was any fraudulent concealment by the defendant or any concealment at all; the patient claimed only that she did not discover what caused the pain and suffering until after the second operation.

The judgment of the trial court for the defendant was therefore affirmed.—*Steele v. Gann (Ark.), 123 S. W. (2d) 520.*

Malpractice: Liability for Prenatal Injuries to Infant.—About thirteen years after her birth, the original plaintiff in this case sued the defendant physicians to recover damages because of personal injuries alleged to have been sustained by her prior to her birth and for which, she contended, the defendants were responsible. After suit was commenced, the child died and her mother, as administratrix of her deceased daughter's estate, filed an amended complaint in which it was alleged that the defendants negligently diagnosed the mother's pregnancy as a uterine tumor; that they negligently treated the mother by administering six roentgen treatments of forty-five minutes each, extending over a period included between the fourth and the seventh month of pregnancy; that such treatments were of such strength that the fetus was burned and certain tissues of its body were destroyed; that the bones of one ankle and certain vertebrae in the neck failed to mature and that consequently the child was born a permanent cripple and feebleminded, developing only to the mental age of 2 years, although she lived

to be 13 years of age. On motion of the defendant physicians, the trial court dismissed the amended complaint and entered judgment accordingly. The plaintiff then appealed to the appellate court of Illinois, first district, second division.

The real and only question involved in this case was whether a child after its birth may maintain an action for injuries sustained before its birth. In answering that question in the negative the appellate court relied on a previous decision of the Supreme Court of Illinois in the case of *Allaire* v. *St. Luke's Hospital*, 184 Ill. 359, 56 N. E. 638, 48 L. R. A. 225, 75 Am. St. Rep. 176, quoting from it as follows:

> The action is not given by any statute, and, if maintainable, it must be so by the common law, and therefore the question is whether, at common law, the action can be maintained. Had the plaintiff, at the time of the alleged injury, in contemplation of the common law, such distinct and independent existence that he may maintain the action, or was he, in view of the common law, a part of his mother? If the former, it would seem the action can be maintained, but, if the latter, not; because, if a part of his mother, the injury was to her, and not to the plaintiff.
> . . . That a child before birth is, in fact, a part of the mother, and is only severed from her at birth, cannot we think be successfully disputed. The doctrine of the civil law and the ecclesiastical and admiralty courts therefore, that an unborn child may be regarded as in esse for some purposes, when for its benefit, is a mere legal fiction, which so far as we have been able to discover has not been indulged in by the courts of common law to the extent of allowing an action by an infant for injuries occasioned before its birth. If the action can be maintained, it necessarily follows that an infant may maintain an action against its own mother for injuries occasioned by the negligence of the mother while pregnant with it. We are of opinion that the action will not lie.

After quoting from the Allaire case and reviewing a number of cases from other jurisdictions, the court in the present instance pointed to the fact that counsel for the plaintiff had cited no case in which a court of review had held that an action may be maintained by a living child for injuries suffered before its birth or by the administrator of the estate of a child, after its death, for the benefit of its heirs at law or next of kin for like injuries. The court, therefore, concluded that such an action may not be maintained unless and until the right to bring it is afforded by legislative enactment.

The judgment of the trial court for the defendant physicians was therefore affirmed.—*Smith* v. *Luckhardt et al. (Ill.), 19 N. E. (2d) 446.*

Society Proceedings

COMING MEETINGS

American Association of Anatomists, Louisville, Ky., Mar. 20-22. Dr. E. R. Clark, Dept. of Anatomy, Univ. of Pennsylvania School of Medicine, Philadelphia, Secretary.

American Association of Pathologists and Bacteriologists, Pittsburgh, Mar. 21-22. Dr. Howard T. Karsner, 2085 Adelbert Rd., Cleveland, Secretary.

American Orthopsychiatric Association, Boston, Feb. 22-24. Dr. Norvelle C. La Mar, 149 East 73d St., New York, Secretary.

American Physiological Society, New Orleans, March 13-16. Dr. Philip Bard, Johns Hopkins Medical School, Baltimore, Secretary.

American Society for Experimental Pathology, New Orleans, March 13-16. Dr. Paul R. Cannon, Dept. of Pathology, University of Chicago, Chicago, Secretary.

American Society for Pharmacology and Experimental Therapeutics, New Orleans, March 13-16. Dr. G. Philip Grabfield, 319 Longwood Ave., Boston, Secretary.

Annual Congress on Medical Education and Licensure, Chicago, Feb. 12-13. Dr. W. D. Cutter, 535 North Dearborn St., Chicago, Secretary.

Federation of American Societies for Experimental Biology, New Orleans, Mar. 13-16. Dr. D. R. Hooker, 19 West Chase St., Baltimore, Secretary.

Mid-South Post-Graduate Medical Assembly, Memphis, Tenn., Feb. 13-16. Dr. A. F. Cooper, Goodwyn Institute Bldg., Memphis, Tenn., Secretary.

CENTRAL SOCIETY FOR CLINICAL RESEARCH

Twelfth Annual Meeting, Held in Chicago, Nov. 3 and 4, 1939

Experimental Study on Ingestion of Lead Compounds

Dr. Robert A. Kehoe, Cincinnati: The total lead metabolism of normal human subjects on a prolonged regimen of increased oral intake of soluble lead, over a period of six months in one case on a daily dose of 2 mg., and a period of thirty months in another on a daily dose of 1 mg., were observed. Complete clinical and analytic data, in abbreviated form, were shown in demonstration of the microscopic blood picture, the excretory response, and changes in the levels of lead concentration in the blood and urine. The significance of the data in connection with the hygienic problem of human lead ingestion with food and beverages and in relation to the diagnosis of lead intoxication were pointed out.

DISCUSSION

Dr. Eugene L. Walsh, Chicago: This summary by Dr. Kehoe does not reflect the multitude of data from which these facts have been condensed. In analyses for various substances, that for lead stands foremost in technical difficulties. While the amounts of material determined in this study are small, they are within the limits of experimental error. This work must be accepted as another fundamental step in our knowledge of lead metabolism in man. Not infrequently, one hears of chronic subclinical intoxication of lead and other heavy metals, ascribed to small quantities of lead ingested over long periods. Dr. Kehoe has shown that ingestion of lead in quantities far in excess of those ordinarily encountered may be continued with impunity. The quantities of lead which, when ingested over a long period, will lead to intoxication are unknown. Several states have imposed a maximum allowable concentration of one-fortieth grain (1.5 mg.) per pound for spray residues. Dr. Kehoe has shown that the average American diet contains from 0.18 to 0.3 mg. daily. If to this is added the amount of lead ingested by a worker who handles food or tobacco with lead-covered hands, this amount could be increased to a quantity thought to be toxic, even as high as 10 mg. daily. Lead intoxication by this source is possible. However, one must remember that there are usually other states of ill health that play a contributory role. In health Dr. Kehoe's experiments show that ingestion of the quantities of lead just noted does not lead to acute intoxication or any demonstrable subclinical syndrome; that much of the lead passes through the intestinal tract unabsorbed has been shown. I should like to ask if either of the subjects suffered a respiratory infection, wounds or other maladies and what effect was noted on the healing process or on the lead balance study. I should also like to ask about the effect of acidosis or a change in the intestinal flora on lead metabolism.

Dr. Robert A. Kehoe, Cincinnati: Neither of our subjects has had any symptoms of plumbism, even of the vague type often seen in borderline cases, nor have they shown any of the blood changes (abnormal numbers of reticulocytes or stippled erythrocytes) which are regarded as evidence of abnormal lead absorption. In one of them, who had a small infected pocket at the gingival margin of a central incisor, a faint but definitely punctate blue area developed in the gum overlying the pocket. This area disappeared completely within three days after the evacuation and treatment of the pocket. It should be remembered that a lead line is evidence of lead absorption only, not of intoxication. Both subjects have had acute upper respiratory attacks in the form of common colds. These have had no material influence on the lead absorption or excretion, nor have they run any unusual or prolonged course. There has been no serious illness. An attack of food poisoning in one subject ran the usual course of diarrhea and vomiting, with recovery in three days. The subject was not too ill to collect all the materials evacuated by emesis and diarrhea, so that the experiment did not suffer. We have not attempted the production of changes in the acid-base equilibrium or in any other phase of the mineral metabolism, with the idea of influencing the deposition or mobilization of lead, wishing rather to obtain the normal undisturbed pattern of the lead metabolism over a prolonged period.

Urinary Excretion of Thiamin: Its Significance and Diagnostic Value

William D. Robinson, M.D., Daniel Melnick, Ph.D., and Henry Field Jr., M.D., Ann Arbor, Mich.: The chemical reaction between thiamin and diazotized p-amino-acetophenone in alkaline solution has been utilized for the chemical determination of the vitamin in urine. During the production of an experimental thiamin deficiency urinary excretion dropped very rapidly, and during recovery it rose to normal slowly. Excretion values before and after a test dose are reproducible in the same normal subject under standardized conditions. Values obtained before and after a test dose on twenty-four normal adults and eighty-nine patients with a variety of clinical conditions show good correlation with the thiamin contents of the preceding diets.

From these data are derived standards for the interpretation of results obtained under conditions of the test.

DISCUSSION

DR. CHESTER J. FARMER, Chicago: This paper is an interesting contribution in the study of vitamin B_1 metabolism. Studies have previously been conducted on vitamin B_1 metabolism but not in this way. The authors took the method of Prebluda and McCollums, which after three years from its first announcement has just been reported as a specific reaction for vitamin B_1, and made use of it for the quantitative estimation of vitamin B in food materials and in excreta. We owe them a debt for making this specific reaction available as a means of quantitation. We are impressed with the remarkable consistency of excretion of vitamin B_1 with the subject on a uniform diet. I have been wondering, in going over some of these experiments, if Dr. Robinson can tell what happens during starvation. The caloric intake of these patients with inadequate supply of vitamin B_1 may have pushed the vitamin B_1 excretion down more rapidly than if the patients were subject to starvation. In one person symptoms of deficiency type occurred after an inadequate vitamin intake for two weeks. I should like to ask if a person kept for two weeks on an inadequate diet can be expected to show some of the deficiency symptoms with regularity. I should like to ask also if in test dose administration there is not a superposition of test dose on food intake. In another publication by these authors it has been shown that, if a 5 mg. test dose is given without food, the percentage of excretion is not as great as when the dose is given with food. Does this mean a greater destruction of the vitamin in the body? Is that of necessity the case, or is the lesser excretion not an evidence of greater utilization?

DR. M. A. BLANKENHORN, Cincinnati: There is always an academic question in this problem of the intake and output of vitamin as to its threshold in the kidney. I should like to ask if the function of the kidney has been taken into regard. In your tables there is only one cardiac patient with normal output of thiamin. Is it not possible that kidney disease, which often accompanies heart disease, was responsible for low thiamin output? What methods were employed to decide that question? I should also like to ask what the clinical manifestations of vitamin B deficiency were after two weeks of inadequate intake.

DR. T. D. SPIES, Cincinnati: This is an important paper. When one considers that 94 per cent of the thiamin is removed from white flour and that the greatest natural source the human being has is flour, it appears almost inevitable that many are on the verge of subclinical thiamin deficiency. Also there are persons who do not absorb thiamin from the alimentary tract. Then infection, pregnancy and other conditions increase the requirement. I hope this test is made practical enough for physicians to use it in their offices so that one can have some idea of the subclinical state. There is undoubtedly a long period of ill health during which this deficiency is developing.

DR. ALF SVEN ALVING, Chicago: Patients treated with alkali therapy in gastric ulcer have renal deficiency at times and I wonder if any studies have been made in that type of case.

DR. WILLIAM D. ROBINSON, Ann Arbor, Mich.: In answer to the question concerning the status of thiamin in starvation, we do not have any patients who have been starved. We have tested several with anorexia nervosa and some patients who have eaten virtually nothing because of psychiatric disturbances, and they show a very low excretion on the day of the test and a low response to the test dose. We have no critical data which would enable us to differentiate as to whether thiamin is depleted more or less rapidly in starvation. As to the matter of development of symptoms during a period of deficient intake, the first symptom to appear was aching of the calf muscles, which became more marked after progressively decreasing amounts of exercise, as well as paresthesia of the lower extremities, tenderness of the calf muscles and dyspnea on mild exertion. These symptoms appear in from ten to fourteen days. Jolliffe and his co-workers have stated that neuritis will appear in an alcoholic patient who ingests a diet totally deficient in thiamin for twenty-one days. The superimposition of the test dose on the thiamin furnished in the food has been taken care of by the manner in which the study was done. All subjects ate the same diet for two days and an oral test dose was given on the second day. The amount of thiamin excreted the first day has been subtracted from the amount excreted after the test dose to correct for the excretion of thiamin from dietary sources. The excretion of a smaller fraction of the oral test dose taken into the empty stomach is an actual observation and is not due to superimposition of additional thiamin on the amount supplied by the diet. As to the renal insufficiency, the renal function has been taken into consideration because we have found patients with uremia who have low excretion. None of the reported patients with heart disease or peptic ulcer had significant impairment of renal function.

Effects of Nicotinic Acid and Related Pyridine and Pyrazine Compounds on Temperature of Skin

DRS. WILLIAM BENNETT BEAN and TOM DOUGLAS SPIES, Cincinnati: Repeated skin temperature measurements were made on fifty-eight subjects under controlled conditions at 20 C. When 20 mg. of all compounds containing the radical (nicotinic acid, its sodium, ammonium, ethyl, and mono-ethanolamine salts) was given intravenously there was an increase in cutaneous temperature. No vasodilatation occurred with the same dose of quinoline, dinicotinic, 2-6-dimethyl dinicotinic, 6-methyl nicotinic acids, nicotinamide or its hydrochloride, nicotinic acid N-diethyl amide, pyridine, 3 amino pyridine, sodium sulfapyridine, pyrazine mono- or 2-3-dicarboxylic acids. The temperature rise was delayed or abolished when from 30 to 60 Gm. of aminoacetic acid was taken one-half hour before oral doses of nicotinic acid. Epinephrine and nicotinic acid had antagonistic action on cutaneous vessels, whereas histamine and nicotinic acid had somewhat similar actions.

DISCUSSION

DR. MISCH CASPER, Louisville, Ky.: I should like to ask if when large doses of this material were given there were headaches similar to those due to large doses of histamine.

DR. TOM DOUGLAS SPIES, Cincinnati: One thing that is important is that a number of these products are useful in the treatment of pellagra but do not produce vasodilator response.

DR. NELSON W. BARKER, Rochester, Minn.: Does this vasodilatation occur in the extremities? How long does it last?

DR. WILLIAM B. BEAN, Cincinnati: Headache occurs but is not exactly similar to that produced by histamine. The nicotinic acid headache is a sensation of fulness which seems to be milder than the other type and is much shorter. I do not believe they are identical. Doses of more than 1 Gm. of nicotinic acid have been given orally without producing headache, but we have never advocated doses that large. The reason the skin of the face is used to determine the cutaneous temperature is that the variation here is more marked than elsewhere; the reaction lasts longer and comes on more rapidly. Occasionally when large oral doses of nicotinic acid are given or when it is given intravenously, the entire body shows a flush and the cutaneous temperature of the extremities will increase also but not as extensively. The temperature in the legs may actually fall. When the material is given intravenously, the flushing begins in from one to five minutes, reaches an acme in from seven to ten minutes, decreases from there on and finally ends within thirty minutes to one hour. Cutaneous temperature usually remains high after the subject has a return of sensation of coolness. Flushing usually begins in the face within half an hour when the material is given orally and tapers off in the ensuing half hour, but this varies considerably in different individuals. The flush usually has disappeared within half an hour after intravenous administration and within an hour if the nicotinic acid is taken orally.

Vitamin K Activity of 2-Methyl-1, 4-Naphthoquinone

DR. E. A. SHARP, Detroit: Twelve patients showing prolonged prothrombin time (Quick's method) have been treated with 2-methyl-1, 4-naphthoquinone in doses of 0.6 mg. (1,000 Thayer-Doisy units) to 2.4 mg. (4,000 Thayer-Doisy units) daily. The prothrombin time is restored to normal in a majority of instances as promptly with this substance as after the use of natural vitamin K. No toxic manifestations were encountered in this series.

DISCUSSION

DR. ARMAND J. QUICK, Milwaukee: I feel, after listening to this presentation, that the chemical chapter on vitamin K is approaching completion. The chemists have done notable work in solving the structure of vitamin K, but one is now forced to go back to the clinical study. It is known that vitamin K is of greatest importance both in jaundiced patients and in newborn infants with hemorrhage. In the case of jaundiced patients the real problem now is to know how much vitamin K to give, because the liver is an important factor in the utilization of vitamin K in order to change it into the prothrombin component. The response the jaundiced patient gives is variable. I have seen a patient with a prothrombin level of 8 per cent which was increased to 80 per cent within twelve hours with vitamin K. On the other hand, some patients with a prothrombin concentration of from 20 to 30 per cent when given large doses of vitamin K show a tardy response and require days of treatment before the prothrombin reaches the proper level. Therefore the question now is how to correlate liver function and vitamin K; I think the research that must be done is to determine liver function on the patient and then correlate it with the patient's response to vitamin K. I am convinced, from the surgical point of view, that patients with good liver function and a low prothrombin level are better off than patients with poor liver function and relatively high prothrombin concentration.

DR. G. O. BROUN, St. Louis: Through Dr. Doisy and Dr. Kamm I have had the opportunity of using some of the compounds that Dr. Sharp has described. The one with which I have had the most experience is K-5 (4 amino, 2 methyl, 1 naphthol hydrochloride). This material is water soluble and can be given intravenously. By using a single dose of 5 mg. I have had a definite effect on the prothrombin time extending over a period of several days. Also there has been evidence of prompt action in my cases. The drop in prothrombin time will sometimes occur within two hours after administration of the drug. The use of these compounds will do away with the uncertainty of absorption from the intestinal tract. I agree with Dr. Quick that one must bear in mind in all cases in which vitamin K and similar preparations are used that in the presence of severe liver damage vitamin K cannot be utilized. Therefore, in some cases with marked impairment of liver function one cannot expect to get the drop in prothrombin time which will render the patient safe for surgical intervention.

DR. E. A. SHARP, Detroit: I agree with Drs. Quick and Broun as to the clinical application of these compounds and trust that, as time passes, knowledge will develop as to the efficacy of the substance and also as to the schedule of dosage.

Relationship Between Iron and Ascorbic Acid Metabolism

CARL V. MOORE, M.D., HOWARD BIERMAN, M.D., and VIRGINIA MINNICH, M.S., St. Louis: Certain reducing substances, notably ascorbic acid and sodium formaldehyde sulfoxylate, have been shown to enhance the absorption of iron from the gastrointestinal tract. This observation and the suggestion by McFarlane that after iron leaves the blood stream it may be reduced by ascorbic acid in the tissues led us to analyze the possible relationship between iron and vitamin C metabolism. The following observations have been made:

1. Intravenous injection of highly ionized simple ferrous and ferric salts caused a temporary total disappearance of titratable vitamin C from the plasma. Parenteral administration of large amounts of ascorbic acid or of sodium formaldehyde sulfoxylate did not, however, hasten the rate at which iron was removed from the blood stream.

2. Rises in serum iron which occurred after the ingestion of large amounts of soluble ferrous or ferric salts were frequently attended by definite decreases in plasma ascorbic acid. That this decrease was not the result of localized concentration of ascorbic acid in the intestinal tract (as a reducing substance to stabilize the iron in its ferrous state) seems likely, since there was no correlation between the amount of iron absorbed by a given patient and the level of ascorbic acid in his blood plasma.

3. In vitro analysis of the reaction by which high levels of serum iron caused the oxidation of ascorbic acid showed that at least three substances were involved in the reaction: (1) serum iron, (2) vitamin C and (3) an unidentified plasma component. The fact that this reaction could be inhibited by concentrations of 0.2 millimol of sodium cyanide but not by 0.5 mg. of glutathione per hundred cubic centimeters suggests that the third factor involved in the equation is a hemochromogen. Further analysis revealed the existence of a protective substance in plasma which normally protects against the oxidation of the ascorbic acid it contains. The biologic significance of this oxidative mechanism is not immediately apparent.

4. When iron was given in full therapeutic doses during a period of four months to "normal" subjects there was no tendency for the plasma vitamin C to fall to scorbutic or prescorbutic levels. Likewise, daily intravenous injections of ferrous sulfate to dogs for three or four weeks was without apparent influence on the fasting ascorbic acid values in the plasma. In any event the protective mechanism just mentioned was adequate to protect against the oxidation of plasma ascorbic acid by the quantities of iron administered therapeutically.

No specific relation between iron and ascorbic acid metabolism has been observed. However, an interesting oxidation in which plasma iron reacts with an unidentified plasma component, possibly a hemochromogen, to oxidize the plasma ascorbic acid has been described. A protective mechanism efficient enough under normal circumstances to prevent the in vivo oxidation of ascorbic acid by this mechanism has also been demonstrated. The biologic significance of these relationships is not at present apparent.

DISCUSSION

DR. HOWARD L. ALT, Chicago: I have found no consistent difference in the plasma ascorbic acid between patients with pernicious anemia and those with iron deficiency anemia. The former group have a high concentration of serum iron and the latter a low concentration. I should like to ask Dr. Moore whether ascorbic acid is destroyed by iron or whether it can again be converted to the active reduced state. If ascorbic acid is completely destroyed, it seems possible that large doses of iron given to a patient receiving a vitamin C deficient diet might hasten the appearance of a vitamin C deficient state. This effect could be studied by giving guinea pigs receiving a scorbutogenic diet large doses of iron to see whether scurvy appears sooner than in a control group.

DR. CHESTER J. FARMER, Chicago: I am inclined to believe that Dr. Moore has the proper explanation relative to reduction of iron in the intestinal tract by ascorbic acid. I doubt that ascorbic acid is excreted from the blood back into the intestinal tract because if it is excluded from the diet and as much as 1 Gm. of ascorbic acid daily is given intravenously over a consistent period of time with collection of the urine and feces and a metabolism experiment, the ascorbic acid in the feces is not of a demonstrable amount. It will be present in the urine but with massive doses we have been unable to show any excretion from the blood stream back into the intestinal tract. Therefore I doubt that there could be any reduction of iron due to a high blood ascorbic acid level.

DR. W. S. HOFFMAN, Chicago: I should like to ask whether any other substances in the blood would produce a similar reduction in the concentration of vitamin C.

DR. PAUL STARR, Chicago: Holmes has reported the beneficial effect of giving 200 mg. of vitamin C in lead poisoning, with decreased production of lead in the urine. I wonder if this would have any relationship to Dr. Moore's observations concerning vitamin C.

DR. CARL V. MOORE, St. Louis: The vitamin C is apparently irreversibly oxidized. At least all our attempts to recover it with the hydrogen sulfide technic which causes the reversion of the dehydro form to ascorbic acid have been unsuccessful. The only other heavy metals of which the effect has been studied in these experiments are arsenic, cobalt and copper. Cobalt in amounts comparable to the quantities of iron used does not oxidize ascorbic acid. Arsenic and copper do, of course, destroy the vitamin but need no third substance like the plasma component described to complete the reaction. Their effect is different from that of iron. We have not tried the effect of lead.

(To be continued)

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Cancer, New York

37: 329-492 (Nov.) 1939. Partial Index

Development of Fibrosarcoma as Result of Intra-Articular Injection of Radium Chloride for Therapeutic Purposes: New Form of Radium Poisoning in Human Beings. F. Nørgaard, Copenhagen, Denmark.—p. 329.

Leukemia in F Strain of Mice: Observations on Cytology, General Morphology and Transmission. A. Kirschbaum and L. C. Strong, New Haven, Conn.—p. 400.

Relationship of Hormones and Mammary Adenocarcinoma in the Mouse. A. Lacassagne, Paris, France.—p. 414.

*Possible Relationship Between Primary Cutaneous Xanthomas and Melanomas. N. C. Foot, New York.—p. 425.

Bronchogenic Carcinoma with Subcutaneous Metastases. H. Charache, New York.—p. 431.

*Mixed Mesodermal Tumors of Uterus and Vagina: Report of Six Cases. A. L. Arnolsch, Detroit.—p. 435.

Possible Biologic Significance of Interactions Between Polycyclic Hydrocarbons and Sterols in Surface Films. G. H. A. Clowes, W. W. Davis and M. E. Krahl, Indianapolis.—p. 453.

Primary Cutaneous Xanthomas and Melanomas.—Foot believes that the cutaneous xanthoma may be removed from the general group of xanthomas and set more or less by itself in a separate category. Such tumors are frequently found in the skin, cause a local swelling and form a hard, globular, rather fixed mass just in or beneath it. There may also be a spot of brownish pigmentation in the epidermis overlying the mass, not readily distinguishable from the ordinary deep-seated melanoma. These are sharply delimited by a fibrous capsule that sets them off distinctly from the surrounding areolar and adipose tissue. Their surfaces, when sectioned, are usually homogeneous and putty-like in appearance and of a striking ochraceous-orange color. Those of the overlying skin may show a spot of brownish pigmentation. Microscopically the tumors are seen to be composed of vacuolated cells of irregular outline occupying the meshes of a dense, curled, radiating rete of collagenous connective tissue. The dense radiating collagenous stroma, with its "curly" appearance, suggests a neurogenic origin, though the presence of vacuolated cells in the meshes of this rete apparently diverts one's attention from this similarity. Several of these tumors were subjected to a modification of the Ramon y Cajal silver method of block impregnation. Nonmedullated neurofibrils were readily demonstrable. They course in the trabeculae of the stroma either singly or in bundles. They are almost invariably devoid of myelin sheaths. Occasionally they appear to enter the cell nests, there to be lost without forming definite bulbs, loops or other endings. There are usually several large trunks of myelinated nerves at the base of the tumor, which penetrate the trabeculae, lose their sheaths and continue along the septums toward the skin, where they ramify beneath the epidermis and become sparsely distributed. In one tumor, overlying the xanthomatous lesions a well developed melanoma, which did not differ materially from the ordinary pigmented nevus, was found. The cells of its deeper portions became merged with the vacuolated cells of the more deeply situated xanthoma. Not only do the xanthoma and melanoma show a similarity in the presence and distribution of neurofibrils, but Meissner corpuscles cannot be demonstrated in either. Apparently the cells destined to form these are diverted from the derma to the tumor and never differentiate completely. Another point of similarity that should be stressed is the presence, in both groups, of pigmented melanophores, possibly also of melanoblasts. Occasionally there are multinucleated giant cells, with or without contained pigment. Block impregnations were made of cutaneous fibromas, angiomas, fibrosarcomas, hair-matrix or basal-cell carcinomas, and neurogenic subcutaneous sarcomas. No considerable number of neurofibrils could be demonstrated in any of these save the last named, which showed bundles and fibrils exactly similar to those just described. Therefore the author thinks that in this form of xanthoma one is dealing with a tumor that has a phylogenic position intermediate between that of the melanoma, which is terminal on the nerves, and the lemmoma and neurofibroma, which may occur along their course. The xanthoma might be said to have a "subterminal" position on the peripheral nervous tree. With this hypothesis in view, the vacuolated cells of the growth immediately suggest units of the sheath of Schwann, which are normally vacuolated and contain lipids. They would then differ materially from mere "lipophages" or histiocytes, both in their origin and in their morphology. The frequent association of xanthomas with melanomas and the gradual merging of the one into the other would then be readily comprehensible, as the type cell would in each case be a modified Schwann cell. That such tumors have malignant analogues the author shows by presenting a case in which the vacuolated cells are replaced by less mature fusiform components that resemble fibroblasts and may or may not show vacuolization. Thus the innocent members of the group show foam cells that lie in the meshes of a dense collagenous network, while the malignant varieties have exactly the same general topography, though the type cells are denser and smaller and tend to be fusiform. The hypothesis submitted suggests that there are subcutaneous xanthomas that differ from the usual tumors so named, as their stroma suggests a neurogenic type of neoplasm and their cells resemble both those of the sheath of Schwann and those of some melanomas. The presence of readily demonstrable bundles of nonmyelinated nerve fibers in their stroma further heightens their similarity to melanomas. Transitions between the two types of neoplasm can be found in selected cases.

Mixed Mesodermal Tumors of Uterus and Vagina.—Arnolsch reports six cases of heterotopic mesodermal tissue; one was primary in the lower vagina, four involved the cervix and one had its origin in the body of the uterus. One tissue component was common to all, embryonic myxomatous tissue. Botryoid tumors acquire their gross appearance largely because of the dominance and rapidity of growth of myxomatous tissue in a submucous position in a spacious hollow viscus, such as the vagina. All these tumors formed mucosal polyps. In each case the pathologic diagnosis was benign polyp. The vaginal tumor (in an infant) was recognized as a rhabdomyoma, but the case was treated expectantly as a benign lesion. The malignant nature of these tumors was not appreciated until recurrence had developed. In the absence of other evidence of mixed mesodermal tissues, it is the author's opinion that myxomatous tissue, which is an embryonic structure, should be accepted as strong presumptive evidence of the probable mixed mesodermal nature of these polyps and the malignant character of such a tumor should be appreciated. These tumors may be simple in tissue structure. They may be benign, as in the case of the rare lipomas of the uterus. More frequently they are of complex structure and malignant in behavior. The recognition of the true nature of these primary polyps is important, as early complete hysterectomy with intensive irradiation appears to offer the greatest possibility for their control or eradication.

American Journal of Orthopsychiatry, Menasha, Wis.

9: 669-842 (Oct.) 1939. Partial Index

The Sex Offender: Psychiatric Study. J. Frosch and W. Bromberg, New York.—p. 761.

The Psychiatric Social Worker Looks at the School. Ethel L. Ginsburg, New York.—p. 777.

Block to College Mental Hygiene Programs: Denial of Spontaneous Self of Student. J. A. Rose, Philadelphia.—p. 786.

*Relative Effectiveness of Stanford-Binet and Bellevue Intelligence Scale in Diagnosing Mental Deficiency. B. Balinsky, H. Israel and D. Wechsler, New York.—p. 798.

Comparison of Stanford-Binet and Bellevue Intelligence Tests.—Balinsky and his associates determined the intelligence quotients of two groups of patients and at the same time they compared the relative effectiveness of the Stanford-Binet and the Bellevue intelligence quotient tests. The subjects used were sixty-three patients examined at Bellevue

Hospital during 1933 and 1934. Of these cases forty had been recommended and twenty-three not recommended to state institutions for mental deficiencies. The second group consisted of 134 subjects all of whom had been examined in Bellevue Hospital between December 1937 and March 1939. Of these, seventy had been recommended for institutionalization. Examination of the data obtained reveals the following: 1. The Bellevue full scale intelligence quotients give systematically the highest correlations with psychiatrists' recommendations in each investigated group. 2. The Bellevue verbal intelligence quotients give the second highest correlations in the first group and third highest in the second group. 3. The Bellevue performance intelligence quotients give the lowest correlations in the first group and second highest in the second group. 4. The Stanford-Binet intelligence quotients give the third highest correlations in the first group and the lowest in the second group. These results indicate a marked superiority of the Bellevue full scale over the Stanford-Binet in the effectiveness of the tests as instruments in clinical diagnosis of mental deficiency. This superiority is even more effectively brought out if, instead of merely considering the numerical values of the coefficients of correlation, they are translated into their prognostic efficiencies. When this is done the forecasting efficiencies (as obtained from the bi-serial recommendations of the second group) of the Bellevue test turn out to be about 40 per cent as against only about 5 per cent for the Stanford-Binet test. The results also suggest the importance of including performance tests when attempting to differentiate between borderline intelligence and mental deficiency. The low forecasting efficiency of the Stanford-Binet test in differentiating between the borderline and high grade defective groups accounts, in part at least, for the frequent complaint of psychiatrists that the Stanford-Binet test cannot be used alone in the diagnosis of mental deficiency.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

42: 637-796 (Nov.) 1939. Partial Index

Syphilis of Skeleton in Early Infancy: Nonspecificity of Many of Roentgenographic Changes. J. Caffey, New York.—p. 637.
Anterior and Posterior "Notch" Shadows Seen in Lateral Roentgenograms of Vertebrae of Infants: Anatomic Explanation. G. Wagoner and E. P. Pendergrass, Philadelphia.—p. 663.
Madelung's Deformity: Consideration of Its Roentgenologic Diagnostic Criteria. M. Dannenberg, J. I. Anton and M. B. Spiegel, Brooklyn.—p. 671.
Unilateral Enlargement of Lower Extremity Accompanying Varicose Veins, with Roentgen Studies of "Deep Venous Block." H. I. Bigeleisen, New York.—p. 683.
Roentgen Diagnosis of Renal Infection. E. L. Shiflett, Louisville, Ky.—p. 689.
Effect of Small Stones on Renal Function. J. A. Bowen and J. R. Stites, Louisville, Ky.—p. 693.
Renal Tuberculosis: Pathogenesis and Roentgen Findings. H. K Taylor, New York.—p. 700.
*Roentgenologic Visualization of Soft Tissues in Pregnancy. W. Snow and M. Rosensohn, New York.—p. 709.
*Roentgenologic Visualization of Soft Structures of Pregnancy: Experimental Evidence. S. Weintraub and W. Snow, New York.—p. 718.
*Radium Treatment of Angioma in Children. R. Paterson and Margaret C. Tod, Manchester, England.—p. 726.
Irradiation with Small Doses in Treatment of Functional Gynecologic Conditions. I. I. Kaplan, New York.—p. 731.
Effect of Heavy Filtration on Skin Tolerance and Depth Dose. R. Dresser and A. Meltzer, Boston.—p. 756.
Method of Obtaining Greater Ratio of Deep to Surface Dosage. S. J. Hawley, Danville, Pa.—p. 760.

X-Ray Visualization of Soft Tissues in Pregnancy.—Snow and Rosensohn discuss studies of the x-ray visualization of the soft parts of late pregnancy. Their procedure is to inject air into the bladder. This aids in tissue differentiation. They have visualized the uterine wall, placenta, varying degrees of hydramnios, intra-uterine hemorrhage and even the amniotic sac. The importance of recognizing these structures is obvious. The technic is entirely devoid of danger and they have succeeded in making a positive diagnosis in late extra-uterine pregnancy as well as in some tumors causing dystocia.

Experiments in X-Ray Visualization of Pregnancy Tissues.—Weintraub and Snow again draw attention to the black line of demarcation seen between the fetus and the placenta on x-ray examination. Experimental proof (roentgenograms of a stillborn fetus) is presented to show that the blackening of the film is evidence of the fetal subcutaneous fat. Vernix caseosa does not produce the shadow under consideration. Instead vernix caseosa casts a shadow of the same degree as that caused by muscle. An in vitro roentgenogram of a hydramnios was identical with a roentgenogram originally recognized in vivo by Snow and Rosensohn.

Radium Treatment of Angioma.—Paterson and Tod state that 150 children with angioma were treated from 1933 to 1936 at the Manchester Radium Institute with radium. The children attend for only about a year after the lesion is considered to be cured. Such treatment is seen to be effective and when properly controlled is without danger. Of the 150 children 129 are considered well. The essentials are repeated low doses at correct intervals; this the authors suggest to be 1,500 roentgens every two months, although other arrangements will be equally effective. If dosage is carefully calculated, and treatment is not continued indefinitely when it is obvious that a tumor of unusual resistance has been encountered, a good cosmetic result without risk of damage to the skin may be expected. In all 129 cases the angioma has completely disappeared, and when scars are present they were often the result of attempts to treat the angioma with solid carbon dioxide before the institution of radium therapy, or the thin skin over the lesion accentuates the slight degree of atrophy following irradiation. In some cases the slight scar stands out because of lack of pigment when the complexion is dark or the child is sunburned.

American Journal of Surgery, New York

40: 411-746 (Dec.) 1939. Partial Index

Anesthesia for Emergencies. L. F. Sise, Boston.—p. 413.
Shock: Consideration of Prevention and Treatment. R. D. Cressman and A. Blalock, Nashville, Tenn.—p. 417.
Maintenance of Fluid Balance. W. G. Maddock, Ann Arbor, Mich.—p. 426.
Septicemia, Including Acute Infections of Scalp. F. L. Meleney, New York.—p. 435.
Prevention and Treatment of Tetanus. W. M. Firor, Baltimore.—p. 450.
*Studies on Hexyl-Chloro-M-Cresol and Other Carbocyclic Antiseptics. F. W. Hartman and V. Schelling, Detroit.—p. 460.
Surgical Aspects of Otitis Media, Peritonsillar Abscess and Retropharyngeal Abscess. L. Richards, Boston.—p. 505.
Tracheotomy. C. Jackson and C. L. Jackson, Philadelphia.—p. 519.
Contusions, Crushing Injuries and Wounds of Thorax. W. D. Andrus and C. W. Holman, New York.—p. 542.
Emergency Surgery of Heart. D. C. Elkin, Atlanta, Ga.—p. 551.
Appendicitis. A. Ochsner and S. Murray, New Orleans.—p. 566.
*Acute Cholecystitis. R. R. Graham, Toronto.—p. 585.
Acute Pancreatitis. L. S. Fallis, Detroit.—p. 593.
Diverticulitis. C. F. Dixon, Rochester, Minn.—p. 600.
*Acute Perforations of "Peptic" Ulcers. H. H. Trout, Roanoke, Va.—p. 621.
Treatment of Acute Massive Hemorrhage in Peptic Ulcer. S. F. Marshall and E. D. Kiefer, Boston.—p. 625.
Rupture of Bladder and Acute Retention of Urine. W. K. Rexford, Detroit.—p. 643.
Salpingitis and Pelvic Cellulitis. C. B. Ingraham and W. W. Tucker, Denver.—p. 653.
Fractures and Fracture Dislocations of Spine. J. Dunlop, Pasadena, Calif.—p. 681.
Surface Defects of the Hand. J. B. Brown, St. Louis.—p. 690.
Acute Infections of Extremities. D. Hart, Durham, N. C.—p. 711.

Carbocyclic Antiseptics.—The present study emanated from Hartman and Schelling's desire to find a substance of high bactericidal activity and low tissue toxicity to be used in conjunction with tannic acid in the treatment of burns. Many carbocyclic derivatives have been synthesized and have been proved to be highly effective antiseptics, but the authors wish to emphasize only two (dichloro-hexyl resorcinol and hexyl chloro-m-cresol), since only these have received extensive clinical trial as well as exhaustive laboratory tests. These compounds are heavy, colorless liquids or white solids, are practically odorless and are sparingly soluble in water. Dichloro-hexyl-resorcinol and hexyl chloro-m-cresol are unusually effective bactericidal substances, especially against staphylococci, streptococci, pyocyaneus and the gram-negative bacilli when their solutions are acidified to p_H 3 with hydrochloric acid or other acids. Toxicity, both locally and systemically, is comparatively low, so that danger from absorption or ingestion of 1:1,000 solutions is negligible. A highly satisfactory performance in an extended clinical trial coupled with laboratory tests showing low toxicity for tissue cells and unusual effectiveness against bacteria indicates that these substances are the most acceptable general antiseptics.

Acute Cholecystitis.—In the surgical service at the Toronto General Hospital, emergency operations for acute cholecystitis are not advocated by the university staff. The continued publication of data by men of unquestioned repute, experience and sound surgical judgment, urging that patients suffering from acute cholecystitis be considered as suffering from a disease demanding as immediate surgical intervention as though they were suffering from acute appendicitis, is so at variance with this practice that all patients admitted to the hospital, medical and surgical, from July 1926 to January 1934 were studied. The result of this study was such as to justify the continued conservative management of this group of patients. A further analysis, from January 1934 to July 1939, of such material was made by Graham. This last group is confined to the patients admitted to the First Surgical Division, together with the private patients operated on by the author. This entire series consists of 273 cases. There was a total of sixteen hospital deaths. This included patients who refused operation, patients for whom operation was not advised and those who were submitted to operation. This gives a gross mortality of 5.8 per cent. In an analysis of the ninety cases in which no operation was carried out there were six hospital deaths. Twenty-six patients were advised and refused operation, three were in a moribund state when admitted (at necropsy all had stones in the common bile duct) and three died from cardiovascular diseases, for whom it was never possible to consider operation. In the selection of the cases analyzed great care was taken to make sure that the diagnosis was definitely established. Of the ninety patients who either refused operation or for whom operation was not advised there were only six who died, and none of them, the author believes, would have been alive had urgent operation been carried out. That some of the remaining eighty-four patients not operated on may ultimately die from acute cholecystitis is possible, as twenty-six were advised operation. This leaves fifty-eight patients for whom, for various reasons, operation was not advised, and if they die subsequently it will be due to the frailty of human judgment, as their discharge without operation was considered in their best interest. That acute cholecystitis should be considered a disease parallel to acute appendicitis the staff members cannot bring themselves to believe. There were only three cases of general peritonitis, and of 164 patients in the surgical group having delayed operation there were eleven who had a perforation of the gallbladder with a pericholecystic abscess and no general peritonitis, none of whom died of original perforation or of the later operation. This tremendous difference between the localization and the diffuseness of the inflammatory reaction as seen in acute cholecystitis and in acute appendicitis, the author suggests, should of itself be sufficient to demand considering these two disease processes as presenting entirely dissimilar problems. It is not believed that acute cholecystitis in Toronto is any different from acute cholecystitis elsewhere. What, then, the author asks, can explain their apparent placidity in the face of a serious disease? It must resolve itself entirely into a question of terminology. The staff members of the Toronto General Hospital believe that there are three distinct pathologic entities that in many of the reported publications are called acute cholecystitis and thus confuse the real issue: (1) biliary colic, (2) acute cholecystitis and (3) acute cholangitis. Therefore it is concluded that many of the patients operated on within the first forty-eight hours from the onset of the pain are really being operated on for persistent biliary colic. That this procedure is unwise is not suggested, but it is concluded that it is not necessary to save life. Acute cholecystitis with infection presents a history of biliary colic, a palpable tender mass in the right upper quadrant, increased temperature and pulse rate, leukocytosis and occasional jaundice. For such a patient urgent operation to save life is not wise. If, after the restoration of biochemical balance, pain is undiminished despite adequate sedation or if the pulse rate rises or remains persistently high, direct surgical intervention is indicated. The delay necessary to restore biochemical balance enables the occasional operator to marshal all available resources. In the 164 delayed operations there was a mortality of 4.2 per cent, leading to the conclusion that in such a serious disease this mortality is not forbidding.

Acute Perforations of "Peptic" Ulcers.—In about half of the seventy-one cases of acute perforations that Trout considers it was difficult to obtain, before operation for the perforation, any definite history that would suggest the existence of the ulcer before its perforation. Many of the patients had their perforations following an overindulgence in food and fluids, often alcoholic. Properly executed surgery offers the best hope of recovery. Each case presents a separate individual problem and depends on the conditions found after the abdomen is opened. Extensive operative procedures should not be done in an infected field. If the history of the perforation is of sufficient duration to have allowed an extensive peritonitis to develop, the less manipulation done in such a field the better for the patient. While the surgeon is isolating the perforation and applying whatever operative procedure is indicated, the peritoneal cavity should be cleaned, preferably by aspiration. It is important to aspirate the food and other gastric contents from the pelvic cavity and iliac fossae, to which such material frequently gravitates. Unless there is some definite indication to the contrary, it is the author's practice simply to close the ulcer with No. 1 chromic catgut sutures. In a few cases, in which the infiltration surrounding the perforation has been extensive and the condition of the patient precarious, he has sutured a small portion of the omentum over the opening. Frequently in these cases the omentum is found in the neighborhood of the opening, as if it were attempting to plug or close the perforation without "surgical aid." Some years ago it was thought that a posterior gastro-enterostomy at the time of the closure of the perforation gave relief from postoperative gastric distention. At the present time continuous suction through the small duodenal tube prevents gastric distention, and therefore this excuse for the addition of a gastro-enterostomy no longer exists. Continuous suction almost entirely eliminates postoperative vomiting and "gas pains." The solution of the question as to whether to employ drainage after these perforations is only another instance of selecting the proper procedure for the individual case. Frequently drainage, if placed close to the site of closure of the perforation, will be followed by the formation of a gastric or intestinal fistula with all its distressing results. If peritonitis has been sufficient to allow the formation of localized abscesses, these are drained by cigaret drains; but gauze is never placed near the closed perforation.

Annals of Internal Medicine, Lancaster, Pa.

13: 749-914 (Nov.) 1939

Vitamins in Theory and Practice. H. B. Lewis, Ann Arbor, Mich.—p. 749.
Discussion of Therapeutic Test and Provocative Test in Gouty Arthritis. L. M. Lockie, Buffalo.—p. 755.
Statistical Study of Allergy in Arthritis. E. F. Traut and E. G. Vrtiak, Chicago.—p. 761.
*Active Immunization Against Tetanus. H. Gold, Chester, Pa.—p. 768.
Effect of Roentgen Ray on Blood Codehydrogenases I and II. W. B. Bean, R. W. Vilter and T. D. Spies, Cincinnati.—p. 783.
Use of Dilantin in Treatment of Epilepsy. O. P. Kimball, Cleveland, and T. N. Horan, Detroit.—p. 787.
Some Studies in Mechanism of Cardiac Hypertrophy. G. Herrmann and G. M. Dechert Jr., Galveston, Texas.—p. 794.
Method of Testing Cardiac Function. D. G. Stine, Columbia, Mo.—p. 807.
Roentgen Procedures Useful in Cardiac Diagnosis. F. J. Hodges, Ann Arbor, Mich.—p. 826.
*Deep Injection of Novocain for Relief of Pleural Pain. S. Schnur, Houston, Texas.—p. 845.
Initial Management of Tuberculosis, with Special Reference to Psychology of the Patient. L. J. Moorman, Oklahoma City.—p. 849.
Limitations of Government in Medicine; San Francisco Experience. J. C. Geiger, A. E. Larsen and J. P. Gray, San Francisco.—p. 856.

Active Immunization Against Tetanus.—According to Gold, the antitoxin titer produced by the injection of tetanus toxoid and the influence exerted on this titer by such factors as dosage, time interval between injections, associated antigens and "repeat" or stimulating injection of toxoid have been the subject of careful investigation. In this paper the author reports his observations on the comparative value of various antigenic preparations. Tetanus toxoid (plain), tetanus toxoid (plain) to which 0.4 per cent alum was added and alum precipitated tetanus toxoid (refined) were used for active immunization of thirty-two healthy persons from 14 to 28 years of age. Twelve persons (group A) were immunized by means of three 1 cc. injections of tetanus toxoid plain. The period between injections was varied in order to determine the inter-

val of time that will give the best antitoxin response. This appears to be one month. The subjects showed 0.003 unit or less of antitoxin per cubic centimeter of blood serum before active immunization was instituted. From eighteen to thirty-two days after the final dose was given all subjects but one showed from 0.1 to 2 units of antitoxin per cubic centimeter of blood serum. At the end of one year two subjects showed 0.25 unit, while seven tested less than 0.1 unit. Five members of this group A received a fourth or "repeat" dose of the same toxoid one year after the basic course of immunization had been completed. The titer for the entire group ranged above 2 units per cubic centimeter of blood serum one month after the stimulating dose was given. At the end of sixteen months there was a considerable drop in the antitoxin titer of the group, although it was still well above the minimum protective level of 0.1 unit. A second group (B) of twelve young people received treatment similar to that given the members of group A except that the antigen used consisted of the tetanus toxoid plain to which 0.4 per cent alum had been added. Four members of this group B received a fourth "repeat" dose of 1 cc. of plain toxoid plus alum one year after the basic course of immunization had been completed. Eight young men (group C) were immunized with two doses of tetanus toxoid alum precipitated (refined). Half of the group received 0.5 cc., whereas the other half got 1 cc. at each injection. The two doses were given 146 days apart. Three members of this group received a third or "repeat" injection of 1 cc. of the same toxoid 237 days after the second dose, when the antitoxin level of their blood was less than 0.1 unit. Summarizing the results of these experiments, the author says that two injections of tetanus alum precipitated toxoid produce a higher antitoxin titer than three injections of plain toxoid when given in accordance with the schedule used in this study. Following the basic course of immunization there is a rapid and variable loss of antitoxic immunity. This necessitates the injection of a "repeat" or stimulating dose of toxoid at the time of injury. The "repeat" dose will bring up the antitoxin level of the blood of a previously immunized subject to a protective level of 0.1 unit or more within four to six days. One week after the "repeat" dose the antitoxin titer of an immunized subject is from two to fifty times greater than the titer produced by the injection of 1,500 units of tetanus antitoxin. Following the "repeat" injection of toxoid the protective titer seems to be maintained for a longer period than is the case after the basic course of immunization.

Procaine Hydrochloride for Pleural Pain.—Schnur attempted to relieve severe pleural pain by local injection of procaine hydrochloride into the pleura. The site of the maximum pain having been indicated by the patient, one or more interspaces in this region were infiltrated with from 5 to 10 cc. of a 2 per cent solution of procaine hydrochloride intracutaneously, subcutaneously and in the region of the pleura. Most of the procaine hydrochloride was injected deeply. An ordinary hypodermic needle was used for the superficial infiltration and a No. 19 Wassermann type needle for the deep injection. Care was taken to avoid the intercostal vessels by injecting at the upper border of the rib. Penetration of the parietal pleura can be recognized frequently by an accentuation of pleural pain or by suddenly encountering resistance due to consolidated lung. Although it did not appear necessary to infiltrate between the two layers of pleura, piercing the parietal pleura (and presumably entering into the pleural cavity) seemed to give the best results. The author employed this treatment of pleural pain in thirty-one cases of pneumococcic pneumonia and one of pulmonary infarction. These patients had typical sharp, lancinating pleural pain frequently associated with a grunt and aggravated by cough and inspiration. In most of the cases the usual methods to relieve pain had been used previously without success. The injection of procaine hydrochloride resulted in immediate relief of the pleural pain in all thirty-two cases. In twenty-one of these, pain was permanently abolished. In those persons in whom pain recurred, its severity was much decreased. Following the relief of pain, respiration was definitely altered; inspiration became deeper, the rate slowed, expiratory grunting ceased, and several patients appeared to have immediate improvement in the cyanosis. Moreover, cough was no longer distressing, and restlessness and insomnia disappeared after the pleural pain had been relieved. Many patients who had not slept for from twenty-four to seventy-two hours fell asleep within ten minutes after the injection. There appeared to be a corresponding improvement in the mental attitude. Since the cases studied were few and several factors were uncontrolled, it cannot be said at present how injection of procaine hydrochloride affected the course of the disease. From the clinical point of view it appeared to be beneficial. Since prognosis is partly dependent on adequate rest and the relief of all distress and mental anxiety, and these are favorably affected by this treatment, a more favorable prognosis can be expected. There were no harmful effects from this treatment.

Archives of Neurology and Psychiatry, Chicago

43: 979-1222 (Dec.) 1939

Preliminary Analysis of Functions of Temporal Lobes in Monkeys. H. Klüver and P. C. Bucy, Chicago.—p. 979.
Histopathogenesis of Cerebral Abscess. F. A. Carmichael Jr., Kansas City, Mo.; J. W. Kernohan and A. W. Adson, Rochester, Minn.—p. 1001.
Roentgenographic Sign in Cases of Tuberous Sclerosis of Brain (Multiple "Brain Stones"). P. I. Yakovlev, Waverley, Mass., and W. Corwin, Waltham, Mass.—p. 1030.
Acute Anterior Poliomyelitis (Heine-Medin Disease?) with Unusual Cerebral Manifestations: Clinical and Pathologic Report of Case. R. B. Richter, Chicago.—p. 1038.
*Sodium Diphenyl Hydantoinate in Treatment of Convulsive Seizures: Toxic Symptoms and Their Prevention. H. H. Merritt, Boston, and T. J. Putnam, New York.—p. 1053.
Pallidofugal Fibers in the Monkey. S. W. Ranson and Mary Ranson, Chicago.—p. 1059.
*Dementia Paralytica: Effect of Continuous Intensive Therapy with Trypарsamide and Bismuth on Cerebrospinal Serologic Reactions and Frequency of Relapse. G. W. Forman, St. Joseph, Mo.—p. 1068.
Cells of Origin of Fibers of Corpus Callosum: Experimental and Pathologic Observations. L. J. Pines and R. M. Maiman, Leningrad, U. S. S. R.—p. 1076.
Diffuse Progressive Leukodystrophy in the Adult, with Production of Metachromatic Degenerative Products (Alzheimer-Baroncini). L. Van Bogaert and A. Dewulf, Antwerp, Belgium.—p. 1083.
Sweat Secretion in Man: V. Disturbances of Sweat Secretion with Lesions of Pons, Medulla and Cervical Portion of Cord. C. F. List and M. M. Peet, Ann Arbor, Mich.—p. 1098.

Dilantin Sodium in Convulsive Seizures.—Merritt and Putnam state that dilantin sodium has been used at the neurologic clinic of the Boston City Hospital for the last two years. During this time the drug has been administered to more than 350 patients. In an attempt to evaluate the therapeutic efficiency of dilantin sodium it was thought advisable to use the drug only for patients who had received other forms of treatment, such as phenobarbital, bromides, a ketogenic diet, low fluid intake and surgical procedures, and had not been relieved of their attacks. For the vast majority of the patients phenobarbital had been the previous mode of treatment. Dilantin sodium is administered in capsules of 0.1 Gm. (1½ grains). The amount which should be given is that which will prevent the occurrence of the seizures and will not produce toxic symptoms. This amount must be determined by trial for each patient and in the authors' experience has varied between 0.2 and 0.6 Gm. (3 and 9 grains) daily. Because of the alkalinity of the drug, gastric symptoms may result if it is given on an empty stomach. In such cases the medicine should be given with or just after meals. In some cases the administration of 15 minims (0.9 cc.) of diluted hydrochloric acid before meals has prevented the gastric symptoms without interfering with the effectiveness of the drug. The sudden cessation of an established medication should be avoided. Withdrawal of an accustomed drug, phenobarbital for instance, may result in the occurrence of many seizures before a sufficient concentration of dilantin sodium has been established. A satisfactory procedure is to continue the dose of the previous medicament for two or three days and then gradually to reduce it daily by fractions of 25 per cent of the original dose. In special cases, when the attacks are known to occur at certain times, the drug can be administered so that the greatest concentration in the system is at that time. Regulation of the dose is not difficult for patients who are having several or many attacks weekly. Such patients are given 0.3 Gm. (4½ grains) daily. If this dose is found to be ineffective it is increased by 0.1 Gm. (1½ grain) increments every ten days or two weeks until relief from attacks is obtained or until toxic symptoms develop.

The treatment of patients who have relatively infrequent attacks is more difficult. It is advisable that these patients receive more than the minimum amount of therapy. The authors have obtained good results in several such cases by giving from 0.4 to 0.5 Gm. (from 6 to 7½ grains) of dilantin sodium daily, even though most attacks were prevented by a smaller dose. The toxic reactions which attend the use of dilantin sodium are of a different character from those observed with phenobarbital and the bromides. The drowsiness which the last two drugs produce and the rashes which often follow the use of bromides are rarely seen. Instead, a new group of symptoms is observed with high doses. Judging from animal experiments and clinical experiences thus far, danger to life should be less than that from bromides or phenobarbital. The percentage of minor toxic reactions is probably greater than that encountered with other forms of therapy, such as phenobarbital. The authors conclude that dilantin sodium is the most effective anticonvulsive drug that they have used and they advise its use for patients who are not free from symptoms with other forms of treatment.

Tryparsamide and Bismuth Compounds in Dementia Paralytica.—Modern methods of treatment of dementia paralytica having been followed by frequent relapses, Forman decided to apply intensive and continuous treatment with tryparsamide and bismuth compounds alone or after malariotherapy until reversal of the positive syphilitic reaction of the cerebrospinal fluid. Thirty-eight patients with dementia paralytica were treated intensely and continuously, for periods varying from ten months to seven years, with the maximum doses of tryparsamide and thio-bismol until the Wassermann reaction of the spinal fluid was negative or until death supervened. Eighty-four per cent of this group also received malarial treatment in the beginning. Of the series, 28.4 per cent showed complete and 18.4 per cent partial remission; 36.7 per cent were unimproved or slightly improved; 5.2 per cent died of causes other than dementia paralytica, and 10.5 per cent died presumably of dementia paralytica. Of the entire group 2.6 per cent after showing a negative Wassermann reaction of the spinal fluid had a reversal to positive. In all of the 84.2 per cent who are living, reversal of the Wassermann reaction of the spinal fluid to negative was effected. There have been no clinical relapses. The only evidences of progression are represented by deaths due to dementia paralytica in 10.5 per cent of the cases. These results bear out the opinion and clinical evidence that, although clinical improvement in dementia paralytica following modern methods of treatment shows no relation to the improvement in the spinal fluid, nevertheless a reversal of the Wassermann reaction of the spinal fluid to normal is an especially desirable feature. The observations also indicate, first, that continuous and intensive treatment with tryparsamide and the heavy metals, until the Wassermann reaction of the spinal fluid is negative, whether or not fever treatment has been given, is effective in preventing relapse or progression while treatment is in progress; second, that it is effective in promoting the reversal of the positive syphilitic reaction in the spinal fluid in 100 per cent of those who do not die of the disease before the Wassermann reaction of the spinal fluid becomes negative, and, third, that it reduces the incidence of progression of the disease. The fact that in a small percentage of cases the negative Wassermann reaction of the spinal fluid became positive again indicates the necessity of examination of the spinal fluid at regular intervals for years after a negative reaction has been obtained.

Archives of Physical Therapy, Chicago

20: 657-720 (Nov.) 1939

Intravaginal Treatment of Pelvic Inflammation by Controlled Superheated Air: Preliminary Report. F. H. Falls, L. B. Newman and D. Kobak, Chicago.—p. 661.
Portable Whirlpool Bath. R. S. Emerson, Hempstead, N. Y.—p. 671.
Rational Ultraviolet Therapy and Skin Sensitometry. J. Saidman, Paris, France.—p. 673.
Vascular Spasm in Experimental Gastric Ulcer. A. J. Nedzel, Chicago.—p. 683.
New Means of Experimental Physicodiagnosis. P. Liebesny, New York.—p. 687.
Carcinoma of Cervix: Early Diagnosis and Treatment. W. Hofmann, Indianapolis.—p. 695.

Arkansas Medical Society Journal, Fort Smith

36: 149-172 (Dec.) 1939

Prolonged First Stage of Labor. L. Rudolph, Chicago.—p. 149.
Obstetrics in the Small Hospital. J. H. Wilson, Magnolia.—p. 156.

Bulletin New York Academy of Medicine, New York

15: 769-824 (Dec.) 1939

Address of Welcome Twelfth Graduate Fortnight. M. Goodridge, New York.—p. 771.
Hypothalamic-Pituitary Syndromes. L. Lichtwitz, New York.—p. 773.
Physiology and Principal Interrelations of Thyroid Gland. D. Marine, New York.—p. 790.

Canadian Public Health Journal, Toronto

30: 469-516 (Oct.) 1939

Diphtheria Toxoid: Review. D. T. Fraser, Toronto.—p. 469.
Program of Medical Care in Manitoba. F. W. Jackson, Winnipeg, Man.—p. 479.
Scarlet Fever Immunization in Edmonton, Alta. G. M. Little, Edmonton, Alta.—p. 488.
Population Estimates. M. C. MacLean, Ottawa, Ont.—p. 491.
Outbreak of Acute Anterior Poliomyelitis in Alberta During the Winter Season. A. C. McGugan, Edmonton, Alta.—p. 495.

30: 517-566 (Nov.) 1939

Industrial Hygiene from the Public Health Aspect. J. A. Baudouin, Montreal.—p. 517.
Scope of Medical Services in Industry. A. M. Mitchell, Montreal.—p. 523.
Industrial Hygiene in Ontario. J. G. Cunningham, Toronto.—p. 524.
Industrial Hygiene in the Province of Quebec. F. J. Tourangeau, Quebec, Que.—p. 527.
Industrial Poisons Problem in Canadian Industry. F. G. Pedley, Montreal.—p. 530.
Neuroses in a Large Office Group. F. S. Parney, Ottawa, Ont.—p. 534.
Practice of Preventive Medicine by a General Practitioner Among Employees in a Small Factory. H. M. Harrison, Toronto.—p. 541.
Provision of Nursing Services and Medical Care in a Group of Small Factories. F. R. Griffin, Toronto.—p. 545.
Control of Sickness in a Large Group of Lumber Camp Workers. W. I. Taylor, Cannington, Ont.—p. 547.
Cardiovascular Disease Among Railway Employees. K. E. Dowd, Montreal.—p. 550.
*Gastrointestinal Diseases Among Steel Workers. F. E. H. Day, Hamilton, Ont.—p. 555.

Gastrointestinal Diseases Among Steel Workers.—Day states that the importance of gastrointestinal diseases among steel mill workers can best be assessed by the amount of time lost because of these diseases as compared with the time lost from other diseases. During 1938 at a steel plant which had an average payroll of 3,200 gastrointestinal diseases accounted for 2,377 days of lost time in contrast with 946 lost days occasioned by respiratory illnesses and 881 days by cardiovascular diseases. Steel workers present a particular problem in digestive ailments because of circumstances connected with their habits. The changing weekly shift is undoubtedly an important influence in the prevalence of gastric and intestinal disorders. Frequently the indigestion of a patient will improve satisfactorily until he starts night work, when indigestion immediately recurs. The very type of work, with its intense heat, gas and dust, predisposes to the occurrence of digestive disorders. All the employees carry lunches, which are eaten in a thirty minute rest period or, more often, a sandwich is snatched during a pause in the mill. One wonders what influence a regulated midshift meal would have on the incidence of digestive and intestinal upsets. The subject is considered with regard to the occurrence of "peptic ulcers." The 3,200 workers consist at the present time of 3,089 men in the factory and 191 members of the office staff, seventy-five of whom are girls. There have been no peptic ulcers as far as is known among the seventy-five women employees, but in contrast to this eighty men with positive x-ray diagnoses of ulcer are under observation and there is a record of one death from a perforation. This gives an incidence of 2.16 per cent. This figure the author believes is extremely low, as postmortem observations show scars of ulcer in about 10 per cent of the cases. Therefore the incidence is probably five times the number under observation. Five patients with complicated ulcers accounted for 126 days lost. The remaining seventy-six patients with ulcer were absent from work for only eleven days in one year. There are seventy-four duodenal and seven gastric ulcers. This ratio the author points out is not in accord with other statistics that he has seen, as four or five duodenal ulcers are usually reported for one gastric ulcer. The only explanation

that he can offer for this difference is that patients with gastric ulcer suffer less pain and are able to get relief with alkalis. A definite diagnosis is therefore not made. Probably if barium sulfate meals were given in all the so-called indigestion cases the incidence of ulcer would be much higher than 2.16 per cent and most likely the increase in gastric ulcers would be more marked. In the last eleven years, of the eighty-one patients with ulcers fifty-seven have been treated medically and twenty-four have had an operation. The twenty-four surgical cases include perforations and operations by choice. Nonoperative treatment in the fifty-seven cases gave good results in forty-one, fair in eleven and poor in five. To the author these figures appear satisfactory when it is realized that these patients are laborers who carry lunches, require large quantities of food and almost invariably are heavy users of alcohol and tobacco. The results in the surgical cases have not been as good, only three of the thirteen patients operated on by choice having had adequate medical treatment before operation. In only seven of these have the results been satisfactory. A subsequent gastric resection was performed on one of the six patients, with unsatisfactory results. Four of the remaining five have gastric ulcers, as shown by x-ray examination. Six of the eleven patients operated on because of perforations had never sought medical care and only on careful questioning would admit any previous indigestion. Two others were known to have ulcers, and one of these had had gastro-enterostomy. The remaining three were being treated for indigestion. The only death associated with peptic ulcers occurred in this group and was due to postoperative pneumonia. There are records of only five patients who had a definite hematemesis or melena; this followed gastro-enterostomy.

Delaware State Medical Journal, Wilmington

11: 231-246 (Nov.) 1939

Stabilization of Joints in Childhood. A. R. Shands Jr., Wilmington. —p. 231.

Vocational Rehabilitation. R. N. Parkhill, Wilmington.—p. 235.

Florida Medical Association Journal, Jacksonville

26: 213-264 (Nov.) 1939

Eugenic Sterilization. A. T. Cobb, Gainesville.—p. 227.

Management of Injuries from Automobile Accidents. E. B. Hardee, Vero Beach.—p. 231.

Perinephric Abscess, Its Diagnosis and Treatment. J. J. Guerra, Tampa. —p. 233.

Can the Mosquito Transmit Syphilis? W. H. Kupper, Miami Beach.—p. 236.

Bidwell T Frame, Leg Setting Apparatus. A. M. Bidwell, Tampa.—p. 238.

Indiana State Medical Assn. Journal, Indianapolis

32: 675-730 (Dec.) 1939

Psychologic Factors in Cardiology. E. F. Horine, Louisville, Ky.—p. 675.

Some Contributions of Roentgen Rays to Diagnosis. B. R. Kirklin, Rochester, Minn.—p. 677.

Internal Fixation of Fractures: Analysis of Reaction of Various Metals. W. C. Campbell, Memphis, Tenn.—p. 679.

Bronchoscopy as Aid in Treatment. H. B. Orton, Newark, N. J.—p. 683.

Serum Treatment of Pneumonia. R. Hoffman, South Bend.—p. 686.

Specific Primary Peritonitis. C. Ingalls, Washington, Ind.—p. 688.

Complications Following General Anesthesia. F. A. Thomas, Indianapolis.—p. 695.

Journal of Bacteriology, Baltimore

38: 485-598 (Nov.) 1939. Partial Index

Experimental Study of Relation Between Concentration of Disinfectants and Time Required for Disinfection. T. W. Tilley, Washington, D. C. —p. 499.

Studies on Hemolytic Streptococcus: III. Polysaccharide and Protein Fractions Encountered in Precipitation of Erythrogenic Toxin from Culture Filtrates. A. H. Stock, Pittsburgh.—p. 511.

*Relationship Between Temperature and Streptococcidal Activity of Sulfanilamide and Sulfapyridine in Vitro. H. J. White, Baltimore.—p. 549.

Studies on Immunizing Substances in Pneumococci: X. Relationship Between Acetyl Group on Type I Pneumococcus Polysaccharide and Antigenicity. L. D. Felton and B. Prescott, Washington, D. C.—p. 579.

Effect of Temperature on Streptococcidal Action of Sulfanilamide Derivatives.—White presents data on quantitative relationships between sulfanilamide and sulfapyridine and bacteria, in terms of bactericidal action, at temperatures between 86 and 102.2 F. The standard test medium was essentially a 2.1 per cent solution of peptones plus 0.1 per cent dextrose buffered at a p_H of approximately 7.6. The minimal bactericidal concentrations of sulfanilamide and of sulfapyridine for each of six different initial concentrations of beta hemolytic streptococcus strain C 203 (a member of the serologic group A, Lancefield) in the peptone-dextrose broth were determined at temperatures between 86 and 102.2 F. Incubation of drug-bacteria mixtures was maintained for forty-eight hours in water baths with thermoregulator control to $\pm$ 0.005 of a degree. Simultaneous titration of the drug and the culture, each against the other, with sterilization as the end point for measuring the activity of the drug, was carried out in a total of 312 determinations. It was found that concentrations of sulfanilamide lower than 1,000 mg. per hundred cubic centimeters of broth medium were inactive at 86 F. and concentrations of sulfanilamide lower than 100 mg. were inactive at 96.8 F. At 102.2 F., concentrations of 10 mg. or less per hundred cubic centimeters of broth medium were bactericidal against an average initial bacterial concentration of 50,000 per cubic centimeter. About a hundred times as much sulfanilamide was required for sterilization at 98.6 as at 102.2 F. Drug concentrations of 10 mg. or less per hundred cubic centimeters of medium were active only at temperatures above 98.6 F. Sulfapyridine was similarly influenced by temperature, but at a higher level of activity. The average activity ratio for these compounds was 4.5, in favor of sulfapyridine. Accurate temperature control appears to be an essential part of any reliable method for measuring the in vitro activity of these drugs.

Journal of Immunology, Baltimore

37: 413-506 (Nov.) 1939

Behavior of Acid-Treated Antipneumococcus Rabbit Antibodies. A. J. Weil, A. M. Moos and Frances L. Clapp, Pearl River, N. Y.—p. 413.

Reaction of "Tetanus-Sensitive" and "Tetanus-Resistant" Animals to Injection of Tetanus Toxin into Spinal Cord. H. B. Shumacker Jr., A. Lamont and W. M. Firor, Baltimore.—p. 425.

Serologic Differences of Group Character A in Different Parts of Human Organism. V. Friedenreich, G. Thyssen and G. Hartmann, Copenhagen, Denmark.—p. 435.

Chemical and Immunologic Studies of Pneumococcus: V. Soluble Specific Substances of Types I to XXXII. Rachel Brown, Albany, N. Y.—p. 445.

Role of "Autoantigens" in Pathogenesis of Physical Allergy. S. Karady, Montreal.—p. 457.

Effect of Histaminase Treatment on Histamine and Anaphylactic Shock in Guinea Pigs. S. Karady and J. S. L. Browne, Montreal.—p. 463.

Studies on Meningococcic Infection: XI. Quantitative Study of Precipitative Reaction Between Type I Polysaccharide and Antimeningococcus Horse Serums. H. W. Scherp, Philadelphia and Rochester, N. Y.—p. 469.

Studies in Active Immunization Against Undulant Fever: I. Antibody Production by Rabbits Immunized with Heat-Killed Brucella Abortus Alone and Simultaneously with Heat-Killed Bacillus Typhosus. J. A. Kolmer and A. Bondi, with assistance of Mary Howard and Anna M. Rule, Philadelphia.—p. 489.

Journal of Pharmacology & Exper. Therap., Baltimore

57: 257-372 (Nov.) 1939. Partial Index

Comparative Activity of Desoxycorticosterone and Other Crystalline Derivatives and of Purified Extracts of Adrenal Cortex. A. Grollman, Baltimore.—p. 257.

Depressant Action of Picrotoxin and Metrazol. J. M. Dille and L. W. Hazleton, Seattle.—p. 276.

*Blood Concentration in Morphine Addicts. E. G. Williams, Lexington, Ky.—p. 290.

Effect of Liver Damage on Blood Level and Action of Paraldehyde. H. Levine, A. J. Gilbert and M. Bodansky, Galveston, Texas.—p. 299.

Hypoglycemic Activity of Globin Insulin. L. Reiner, D. S. Searle and E. H. Lang, Tuckahoe, N. Y.—p. 330.

Calcium Ions Necessary to Synaptic Transmission in Parasympathetic, Not in Sympathetic, Ganglions. G. D. Shafer, San Francisco.—p. 341.

Distribution and Rate of Elimination of Picrotoxin. Dorothy M. Duff and J. M. Dille, Seattle.—p. 353.

Retention and Excretion of Selenium After Administration of Sodium Selenite to White Rats. R. A. Gortner Jr. and H. B. Lewis, Ann Arbor, Mich.—p. 358.

Blood Concentration in Morphine Addicts.—Williams studied the effect of maintained addiction to morphine of 136 samples of blood from eighteen well controlled addicts. These data were compared with those on samples from 189 postaddicts living in an institution under well controlled environmental conditions. These data were also compared with those obtained from fifty-five normal male employees of ages comparable with those of the patients. The mean hematocrit value for the group during maintained addiction was 42.73 volumes per cent, for the

postaddict group it was 47.69 and for the normal employees it was 47.7. The mean specific gravity of whole blood of patients during maintained addiction was 1.0473, for the postaddict group it was 1.0526 and for the employees it was 1.0504. The average values for specific gravity of plasma for the three groups were respectively 1.0195, 1.0217 and 1.0213. Although the figures do not differ much from one another there is definite evidence of hydration during addiction. The average value for the water content of whole blood during addiction was 0.8433, in the post-addiction state it was 0.8294 and in the normal group it was 0.8279. The water content of the plasma in the addict group was greater than in either the postaddict or the employee group, the average values being 0.9316, 0.9236 and 0.9276 respectively. The author concludes that in man morphine addiction with strong physical dependence is associated with blood hydration. During withdrawal there is a temporary decrease in hydration, but a true concentration does not occur. Postaddicts have normal values for cell volume, specific gravity of plasma and water content of whole blood.

Military Surgeon, Washington, D. C.

85: 461-564 (Dec.) 1939

Importance of Adequate Records of Sick and Wounded in Military Services in Time of War, and Best Methods for Obtaining Them. A. G. Love.—p. 461.
Technic for Preparation of Substitute for Whole Blood Adaptable for Use During War Conditions. W. L. Tatum, J. Elliott and N. Nesset.—p. 481.
Stone-Burke Orthotolidine Test for Hematuria. C. C. Gill.—p. 501.
Nutrition as Factor in Periodontal Conditions. D. Mosher.—p. 506.
Treatment of Dementia Praecox by Pharmacologic Shock. E. H. Parsons, A. Simon and Z. Lebensohn.—p. 508.
Varicose Veins: Complications and Results of Treatment of 5,000 Patients. F. L. Smith.—p. 514.
Tropical Diseases from the Standpoint of a Medical Officer of the United States Army. J. C. Carballeira.—p. 522.
Diagnosis of Raynaud's Disease. A. H. Cook.—p. 528.

Nebraska State Medical Journal, Lincoln

24: 441-480 (Dec.) 1939

Office Treatment of Rectal and Anal Pathology. J. K. Anderson, Minneapolis.—p. 441.
Practical Application of Recent Advances in Our Knowledge of Liver Functions. H. L. Bockus, Philadelphia.—p. 448.
*Comparative Epidemiology of Encephalomyelitis and Poliomyelitis. J. H. Murphy, Omaha.—p. 453.
Management of Infections of Bladder. H. W. Shreck, Holdrege.—p. 458.
Treatment of Crushing Injuries of Chest. F. Teal, Lincoln.—p. 463.

Epidemiology of Encephalomyelitis and Poliomyelitis.—Murphy lists the following striking points of similarity between the comparative epidemiology of the equine encephalomyelitis and anterior poliomyelitis: 1. Cases of equine encephalomyelitis (in the area studied) occur on water courses, in depressed areas, not on crests, the economic status (viz. stables, sanitation and supervision were equally good, poor and fair) has an influence, isolated case on an island in the Missouri River, occurrence corroborated in different epidemics, immunity demonstrated and wind influence demonstrated. 2. Cases of anterior poliomyelitis were found to occur on water courses, in depressions and slopes, not on crests, economic status varied equally, isolated case west of city, occurrence corroborated in different years, immunity accepted on previous research and wind influence demonstrated. Assuming these points to be true, including a vector as the mode of transmission, from his analysis it appears to the author that the vector is wind influenced. Such a vector may be one that can be impelled by wind or air currents, such as the mosquito or other agent requiring a definite locale for propagation, can be carried or blown a distance, dislikes highly agitated air and is active in the seasonal occurrences of the disease. Such an agent also can possibly be infected because the virus is in the horse's blood in the early stage of the disease as well as in other demonstrated reservoirs of infection. Surface winds are retarded by friction with the ground and objects thereon to a height of from five to six times the height of such objects. Other elements, viz. barometric pressure and temperatures, also exert some influence. The flow of air can be likened to the flow of water. It is influenced by resisting objects (buildings, hills and the like), cross currents and eddies, and it differs in velocity.

New England Journal of Medicine, Boston

221: 845-882 (Nov. 30) 1939

Maternal Mortality Study in Massachusetts for 1938. R. S. Titus, Boston.—p. 845.
Rupture of Uterus. F. J. Lynch, Boston.—p. 847.
Obstetric Analgesia and Anesthesia. B. F. Cornwall, Salem, Mass.—p. 850.
*Rupture of Liver. C. A. Lamb, Boston.—p. 855.
Traumatic Surgery. H. C. Marble, Boston.—p. 860.

Rupture of Liver.—Lamb reviews sixty cases of rupture of the liver and shows that it is most commonly due to violent injuries but that seemingly trivial injuries may likewise cause laceration. Rupture of the liver is much more frequent in young people than in older ones. This can be accounted for on the basis of violence alone, for the young engage in many more daring activities than do the old. Another reason is that the bony protection in the young is much more supple and that minor blows are therefore more likely to reach the liver. The ratio of male to female patients in this series was 5:1. Every one of the women had sustained injury as a result of an automobile accident. Although the men had been injured in all sorts of accidents, most of their injuries had been produced by automobiles. One child fell while walking the curbing and struck his right lower ribs. Another coasted into a tree. Another was kicked in the side by a horse. A few were injured while playing games, chiefly football. The wheel of some vehicle traversing the abdomen was a common cause of injury. Falling from a height was the etiologic factor in a number of cases. It is absolutely essential to recognize rupture of the liver early in order that proper care may be instituted promptly. Thöle states that the mortality increases from 2 to 5 per cent with each hour's delay in treatment. The author's statistics confirm this assertion. An exact diagnosis cannot be made except on exploration, but the need of immediate laparotomy can be shown without great difficulty. Given a patient who has met with a blow to the midtrunk and soon shows signs of shock, together with tenderness in the right upper quadrant, rebound tenderness (blood in the peritoneal cavity) and an elevated white cell count (bleeding in a serous cavity), an exploration is mandatory. The patient should receive whole blood before, during and after the operation in sufficient quantities to keep the blood pressure within the range of safety. He should be treated for his shock on the operating floor and if possible on the operating table, so that movement may be reduced to a minimum. Except for exposure, no type of incision possesses any special advantage. Transverse incision gives a better exposure for barrel-chested patients but is of doubtful advantage for thin patients. Infection after liver injury is common. Drainage of bile occurs in 50 per cent of the cases but ceases in every case by the third week. The commonest postoperative complications are in the order of frequency: peritonitis, postoperative hemorrhage, subdiaphragmatic abscess, intrahepatic abscess, subhepatic abscess and abscess of the lesser peritoneal cavity. In the present series, twenty-six patients died before operation could be performed. Of the thirty-four operated on, fifteen died and nineteen recovered, a mortality rate of 44 per cent. The mortality rate, however, for the entire series of sixty cases was 68 per cent.

New York State Journal of Medicine, New York

39: 2155-2234 (Dec. 1) 1939

Doctors, Lawyers and Injured Brains. I. J. Sands, Brooklyn.—p. 2161.
Sensitization to Simple Chemicals: V. Comparison Between Reactions to Commercial and to Purified Dyes. R. Hecht, Chicago; L. Schwarzschild and M. B. Sulzberger, New York.—p. 2170.
Communicable Diseases and the School. E. L. Stebbins, Albany, N. Y.—p. 2174.
Obstetric Complications in Relation to the General Practitioner. E. A. Schumann, Philadelphia.—p. 2178.
Measurements of Circulation in Chronic Constrictive Pericarditis Before and After Resection of Pericardium. H. J. Stewart and G. J. Heuer, New York.—p. 2183.
Treatment of Traumatic Wounds with Zinc Peroxide. F. L. Meleney, New York.—p. 2188.
Erythrocyte Sedimentation Test: Observations on Sedimentation Rates and Leukocyte Changes in 103 Hospital Cases. R. O. Gregg and E. G. Allen, Syracuse.—p. 2192.
Histaminase in Treatment of Physical (Heat) Allergy and Some Other Conditions: Report of Five Cases. M. Vaisberg, Patchogue, N. Y.—p. 2199.
Relation Between Anemias and Digestive Diseases in Children. I. N. Kugelmass, New York.—p. 2202.
Modern Approach to Early Diagnosis of Pulmonary Tuberculosis. J. A. Miller, New York.—p. 2208.

Public Health Reports, Washington, D. C.

54: 2077-2120 (Nov. 24) 1939

Factors Influencing Carcinogenesis with Methylcholanthrene: II. Lack of Effect of Foster Nursing. M. B. Shimkin and H. B. Andervont.—p. 2080.
Studies on Some Possible Causative Factors of Spontaneous Adenomatous Lesion of Stomach in Mice of Strain I. H. B. Andervont.—p. 2085.
Studies in Chemotherapy: XI. Antibacterial Action of Phosphorus Compounds: Preliminary Report. H. Bauer and S. M. Rosenthal.—p. 2093.

54: 2121-2158 (Dec. 1) 1939

*Riboflavin Deficiency in Man (Ariboflavinosis). W. H. Sebrell and R. E. Butler.—p. 2121.
Human Serum as Stabilizer of Scarlet Fever Streptococcus Toxin Diluted for Dick Test. M. V. Veldee.—p. 2131.
Cerebral Pathology in Rodents in Endemic Typhus and Rocky Mountain Spotted Fevers. R. D. Lillie, R. E. Dyer and N. H. Topping.—p. 2137.

Riboflavin Deficiency in Man.—Sebrell and Butler examined carefully eighteen adult white women living in an institution and found them to be in good general condition except for mental disorders and physical defects of a nature which would not interfere with their studies. There were no interfering cutaneous, labial or buccal lesions. Thirteen of these women, after receiving a special diet low in riboflavin content, had a reddened, denuded lesion of the lips, maceration and fissuring in the angles of the mouth and seborrheic accumulations at the nasolabial folds developed between the ninety-fourth and the one hundred and thirtieth day on the deficient diet. These lesions disappeared following the daily administration of synthetic riboflavin; they reappeared following the discontinuance of the riboflavin and again disappeared when riboflavin was again given. Six of these women were treated for varying lengths of time with nicotinic acid without benefit. Four of the remaining five women were given a daily preventive dose of synthetic riboflavin after taking the deficient diet for 139 days and they showed no lesions of any kind during the 365 days of observation. The one woman who did not receive any riboflavin therapy showed no lesions at any time during the 365 days of observation. It seems apparent that these lesions are a manifestation of riboflavin deficiency.

Radiology, Syracuse, N. Y.

33: 551-680 (Nov.) 1939

Displacement of Choroidal Plexuses as Aid in Diagnosis and Localization of Brain Tumor. W. W. Fray, Rochester, N. Y.—p. 551.
Analysis of Laminagraphic Motions and Their Values. J. Kieffer, Norwich, Conn.—p. 560.
Sectional Roentgenography of Larynx. W. E. Howes, Brooklyn.—p. 586.
Exploration of Thorax by Body Section Roentgenography. H. M. Wilson, New Haven, Conn.—p. 598.
Body Section Radiography. S. Moore, St. Louis.—p. 605.
Suggestions for Improvement of Illustrations. A. Ter Louw, Rochester, N. Y.; F. R. Lear, Easton, Pa., and L. J. Menville, New Orleans.—p. 615.
Pulmonary Cysts. A. R. Shirley, Wood (Milwaukee), Wis.—p. 623.
Intestinal Obstruction. N. S. Zeitlin, Chicago.—p. 628.
*Relation of Tissue Recovery and Healing Process to Periodicity of Radiation Effects. M. Friedman, New York.—p. 633.
Barium Rubber Drains: Surgical Drainage Tubes That Are Visible by X-Ray. G. M. Wyatt, Boston.—p. 644.

Tissue Recovery, Healing and Periodicity of Irradiation.—Friedman divides the phenomena resulting from protracted fractionated irradiation into two phases: the destructive phase and the healing phase. Each phase has specific characteristics and is modified to varying degrees by the quality of the radiation, the size of the daily dose, individual susceptibility, the daily exposure time and the continuity of the treatment. The fluctuating prowess of the healing process determines whether destructive or healing phenomena dominate the clinical picture. It is this cyclic alternation of the destructive phase with the healing phase that can be termed periodicity. The extent to which the character of the skin and mucosal reactions are reflected in the tumor probably depends on the latter's degree of differentiation and consequently its morphologic and physiologic resemblance to the parent tissue. During the healing phase, residual tumor cells have usually been matured by irradiation and have adapted themselves to its effects. Therefore it is recommended that during a prolonged course of irradiation no treatment be given during the healing phase.

South Carolina Medical Assn. Journal, Greenville

35: 297-324 (Dec.) 1939

Aphorisms on Tuberculosis. W. A. Smith, Charleston.—p. 297.
Painful Scars. F. E. Kredel, Charleston.—p. 299.
Pulmonary Complications as Aid in Diagnosis of Subphrenic Abscess: Preliminary Report. J. A. Boone, Charleston.—p. 300.
Evolution of Knowledge of Tumors. K. M. Lynch, Charleston.—p. 301.
A Century and a Half of Progress in Surgery. R. S. Cathcart, Charleston.—p. 304.
Brief Historical Retrospect. R. Wilson, Charleston.—p. 308.

Southwestern Medicine, El Paso, Texas

23: 353-390 (Nov.) 1939

Wound Healing. T. G. Orr, Kansas City, Kan.—p. 353.
Suspicious Cancer Symptoms. E. P. Palmer, Phoenix, Ariz.—p. 356.
Early Changes in Endometrium: Diagnosis and Management. B. H. Orndoff, Chicago.—p. 359.
Surgical Manifestations of Amebiasis. R. W. Mendelson, Albuquerque, N. M.—p. 361.
Traumatic Rupture of Diaphragm with Bilateral Pneumothorax. R. W. Bliss, El Paso, Texas, and M. M. Green, Panama, Canal Zone.—p. 366.
Mental Anorexia Simulating Pituitary Cachexia. J. W. Myers, Albuquerque, N. M.—p. 367.
Closed Pneumolysis in Pulmonary Tuberculosis: Case Report. J. R. Phillips, Houston, Texas, and L. F. Knoepp, Beaumont, Texas.—p. 369.

Surgery, Gynecology and Obstetrics, Chicago

69: 705-838 (Dec.) 1939. Partial Index

Etiologic Factors in Varicose Veins of Lower Extremities. J. C. Adams, Portland, Ore.—p. 717.
Study of Pathologically Verified Epidermoid Carcinoma of Skin. S. Warren and S. O. Hoerr, Boston.—p. 726.
*Significance of Cevitamic Acid Deficiency in Surgical Patients. J. A. Wolfer and F. C. Hoebel, Chicago.—p. 745.
*Sweating Function of Transplanted Skin. H. Conway, New York.—p. 756.
Acetylcholine as Diagnostic Test in Cases of Congenital Megacolon. G. de Takats, Chicago.—p. 762.
Technic of Gastric Resection for Gastroduodenal Ulcer. R. Alessandri, Rome, Italy.—p. 765.
Fractures of Clavicle: Ambulatory Treatment by Suspension Elevation. R. Anderson, Seattle.—p. 770.
Calibrated Intermediate Skin Grafts. E. C. Padgett, Kansas City, Mo.—p. 779.
*Method for Prevention of Elephantiasis Chirurgica. E. H. Hutchins, Baltimore.—p. 795.
Extrapleural Pneumothorax. A. J. Hruby, R. Davison and G. Schneider, Chicago.—p. 804.
Improved Incision for Radical Operation for Carcinoma of Breast. N. J. Maclean, Winnipeg, Man.—p. 816.
Malignant Mixed Tumors: Adenosarcoma of Corpus Uteri. L. Sophian, New York.—p. 818.

Ascorbic Acid Deficiency and Surgery.—According to Wolfer and Hoebel, although there is no absolute proof at present of the relation of vitamin C deficiency to nonhealing of wounds in human beings there is considerable historical, pathologic, experimental and clinical evidence to support the theory that a relationship exists and to encourage further study, particularly in the clinical field. If the level of ascorbic acid in the blood is low and this is accompanied by a history of deficient or defective alimentation of foods containing the vitamin, it may be considered that the tissues also are depleted. Patients known to be deficient in vitamin C may be saturated by large doses of synthetic ascorbic acid administered either by mouth or intravenously, or by adequate feedings of foods rich in vitamin C. The patient cannot be considered to be saturated with the vitamin until the blood level has been maintained at optimal or above for some time. This should be verified by a high urinary excretion of the vitamin. The latter can be determined only when the daily intake of vitamin C is known. When such determinations are not available the patient should be given 1 Gm. of ascorbic acid daily for a period of nine or ten days and then maintained on doses of from 300 to 500 mg. of the acid daily until the wound is healed. The patient may then be kept saturated on an adequate diet including foods containing vitamin C. The excretion of the vitamin by way of the feces is negligible except in the presence of hypermotility of the small intestine or in addicts to alcohol. Vitamin C deficiency should be thought of and determinations made of (1) patients with a deficient diet—voluntary, because of low income or because of a physician's dietary orders, (2) those taking large doses of alkalis by mouth, (3) those with obstructive gastrointestinal lesions, particularly at the pylorus or above, (4) those with a history of vomiting

over long periods, (5) those with hypermotility of the small intestine and (6) syphilitic patients and addicts to alcohol. After operation normal patients may show a drop of vitamin C to scurvy levels because of long periods of intravenous therapy, abnormal intestinal function and an increased utilization of vitamin C that apparently accompanies infections and operative procedures.

Sweating Function of Transplanted Skin.—Conway studied the sweating function of seventy-five transplanted grafts. Whole thickness grafts and pedunculated flaps were found to be capable of sweating, while small, deep, Ollier-Thiersch and thick split grafts did not have the function of sweating. The age of the individual apparently was not an influencing factor. The reestablishment of the sweating function of the skin depends certainly on the presence of sudoriparous glands in the transplant. This study gives no information on the question as to whether or not the sympathetic nerve fibers to the grafts of skin must be reestablished before the sweating function can take place.

Prevention of Surgical Elephantiasis.—Hutchins offers a method for preventing surgical elephantiasis, especially that following radical excision of the breast to cure cancer. The operation attempts, at the time of the operation, reestablishment of the axilla by the plastic method to a degree or point as near the original as possible. It also endeavors to construct an artificial breast out of the abdominal fat at the time of operation and thus help to avoid the psychosis following operation. In order to reconstruct the axilla more completely it may be advisable to detach the latissimus dorsi not only at its origin but also at its insertion and to reinsert it in the coracoid process. This would provide a framework for the axilla resembling in many respects the part played by the pectoral minor muscle. While the mortality from cancer of the breast is constantly improving, the morbidity of the patient because of the loss of a breast is a constant menace and should have the most serious attention of every surgeon operating for that condition.

Tennessee State Medical Assn. Journal, Nashville

32: 379-416 (Nov.) 1939

Postgraduate Medical Education. M. E. Lapham, New Orleans.—p. 379.
Recurrent Abscess of Thyroid Gland: Case Report. C. H. Long, Johnson City.—p. 383.
Auscultation in Diagnosis of Surgical Diseases of Abdomen. B. McSwain, Paris.—p. 384.
Carcinoma of Stomach: Analytic Study. W. E. Bryan, Chattanooga. —p. 390.
Endemic Goiter. L. K. Gibson, Johnson City.—p. 394.

Virginia Medical Monthly, Richmond

66: 641-706 (Nov.) 1939

Changing Era in Medical Economics. A. F. Robertson Jr., Staunton. —p. 641.
Commentary Concerning Psychoanalysis. L. F. Woodley, Towson, Md. —p. 644.
Is Virginia Doing Its Duty Toward the Advanced Case of Tuberculosis? C. L. Harrell, Norfolk.—p. 650.
Kielland Forceps. M. P. Rucker, Richmond.—p. 653.
Sciatic Neuritis and Low Back Pain Caused by Rupture of Intervertebral Disks. M. K. King, Norfolk.—p. 656.
Arsenical Exfoliative Dermatitis with Tobacco Being Probable Source of Etiologic Agent: Preliminary Report. E. E. Barksdale, Danville. —p. 660.
Cancer of Rectum. W. L. Sibley, Roanoke.—p. 663.
Development of Helpful Mental Habits in Early Childhood. O. B. Darden, Richmond.—p. 666.
What Message Should the Specialist Carry to the Family Physician in Regard to Treatment of Arthritis? T. Wheeldon, Richmond.—p. 670.
Trachoma and Medical Inspection of Aliens. T. C. Merrill, Paris, France.—p. 674.

West Virginia Medical Journal, Charleston

33: 543-594 (Dec.) 1939

Character and Significance of Heart Pain (Oration on Medicine). R. O. Rogers, Bluefield.—p. 543.
Recent Advances in Diagnosis and Management of Placenta Praevia. T. L. Montgomery, Philadelphia.—p. 548.
Treatment of Three Surgical Conditions of Large Bowel. J. E. Cannaday, Charleston.—p. 556.
Use of Continuous Suction in Surgical Treatment. C. B. Wright, Huntington.—p. 564.
Traumatic Rupture of Spleen. T. L. Harris, Parkersburg.—p. 569.
Hemolytic Streptococcus Septicemia Complicating Type IV Pneumococcus Lobar Pneumonia: Case. O. G. King, Bluefield.—p. 575.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

14: 89-180 (June) 1939

Biliary Cirrhosis. P. R. Evans.—p. 89.
Association of Gallstones with Acholuric Jaundice in Children: Report of Case in a Child Aged 3 Years with Note on Crises of Acholuric Jaundice. D. Gairdner.—p. 109.
*After-History of Premature Infants, with Special Reference to Effect of Birth Weight on Weight Chart. R. S. Illingworth.—p. 121.
Ultimate Prognosis of Nephritis in Childhood, Together with a Study of Incidence of Anemia in Various Stages of Disease. Jean M. Cass. —p. 137.
Absorption Studies in Children with Giardia Lamblia Infection: Preliminary Report. P. V. Veghelyi.—p. 155.
Blood and Spinal Fluid Sugar and Chloride Content in Meningitis. Esther Hendry.—p. 159.
Eumydrine in Pyloric Stenosis. H. St. H. Vertue.—p. 173.

After-History of Premature Infants.—Illingworth compares the records of 150 consecutive children (premature series) who at birth weighed 5½ pounds (2,545 Gm.) or less, irrespective of the duration of gestation, with that of a control series of 150 consecutive children who at birth weighed 8½ pounds (3,905 Gm.) or more. The children had a wide variety of ailments and irrespective of the ailment all were included in the two series. All were attending the outpatient department of the Hospital for Sick Children for medical conditions. At the time that this study was begun all the children were more than 1 year of age. It was found that, according to Holt's standard, 86 per cent of the premature series at the various ages of childhood are underweight whereas only 34 per cent of the control series are underweight. Of the premature series 21½ per cent are more than 10 pounds (4.5 Kg.) underweight as compared with 1½ per cent of the control group. Of the premature series 0.66 per cent are 5 pounds (2.3 Kg.) overweight and none more than 5 pounds overweight. Of the control series 24 per cent are more than 5 pounds above the average weight for their age. Prematurity at birth is presented as a common cause of dwarfism in children. The duration of breast feeding appeared to have some effect on the ultimate weight of the child, children breast fed for more than six months appearing to weigh more later than those breast fed for less than two months. There was no difference in the incidence of infectious diseases in the two groups. There was a high incidence of spasticity and other cerebral defects in the premature group. The records show that the premature or small baby is less likely to be an allergic subject than the baby large at birth, as 54 per cent of children with infantile eczema weighed more than 8 pounds (3,630 Gm.) at birth compared with 20 per cent of the control series of children. It is suggested that the weight of the preschool and the school child may also depend on factors quite remote from the birth weight; for example the financial status of the mother, the diet she takes in pregnancy, her occupation, hereditary factors and pathologic conditions of the mother.

Sang, Paris

13: 817-936 (No. 8) 1939. Partial Index

Optic Method for Study of Blood Coagulation: Technic and Results. C. Lian, P. Frumusan and Sassier.—p. 817.
Sternberg's Cells and Megacaryocytes. G. Pittaluga. —p. 833.
*Epidermoid Cysts of Spleen. P. Lereboullet, R. Gregoire, J. Bernard and R. Iharran.—p. 853.
Pseudoleukocytosis in Edematous Conditions. A. Kolcryner and D. Rosenkranc.—p. 870.
Total Teleroentgen Therapy in Treatment of Hodgkin's Disease. G. Marchal, L. Mallet and H. le Lor'h.—p. 897.
Role of Copper in Anemias of Childhood Caused by Iron Deficiency. J. B. Hutchinson.—p. 908.
New Method of Differential Diagnosis of Leukemias and of Leukemoid Reactions. N. Gingold.—p. 920.

Epidermoid Cysts of Spleen.—Lereboullet and his associates give a detailed history of a boy aged 8 who was referred to them because a tumor had been discovered in the left hypochondrium. X-ray and other observations confirmed the splenic origin of the tumor, and the regular contour suggested that it was cystic. The boy was free from functional disturbances but the tumor seemed to increase and an operation was performed. The incision into the left hypochrondrium disclosed a voluminous

cyst of the spleen, which involved particularly the gastric surface of the organ. Exteriorization was rendered difficult by the shortness of the pedicle. Splenectomy was done and the postoperative course was normal. The extirpated spleen weighed 850 Gm. It was extremely deformed by the cyst, which on opening proved unilocular and almost spherical, with a diameter of 8 cm. It contained about 300 cc. of a clear pale yellow liquid. The authors made microscopic studies on the splenic tissue and on the cystic wall. The epithelial lining permitted a definite diagnosis, for it exhibited the epidermoid aspects. The authors think that the epidermoid cyst represents a special variety of splenic cyst. They stress that the typical histologic formation may be present only in a restricted area and that it is essential that sections be taken from various points of the cystic wall. Furthermore, only special stains (Weigert and Del Rio Hortega) will bring the epidermoid character into evidence. The etiology of epidermoid cysts is still obscure, but their predilection for young persons and children seems to suggest a congenital origin. Splenectomy is the treatment of choice in these cysts. The patient was in excellent health a year after the operation.

Cardiologia, Basel

3: 301-364 (No. 5) 1939

Paroxysmal Ventricular Tachycardia with Morgagni-Adams-Stokes Syndrome and Preautomatic Pause of Sinus Node. F. M. Groedel and B. Kisch.—p. 301.
*Experimental Investigations on Air Embolism. I. Pines.—p. 308.
Systematic Investigations on Thoracic Leads in Left and Right Types of Electrocardiogram. J. Freundlich and E. Lepeschkin.—p. 331.
"Perspiratio Insensibilis Negativa" as Cause of Paradox Behavior of Body Weight in Patients with Heart Disease and in Obese Persons. O. Neurath.—p. 353.

Experimental Investigations on Air Embolism.—Pines injected air into the jugular vein or into the left auricle of dogs and cats. He found that in case of massive venous air embolism blood foam is formed which passes from the right ventricle into the pulmonary artery and its branches. When the pulmonary circulation is completely blocked, the aortic pressure drops to zero and death ensues from asphyxiation. If, however, the pulmonary circulation is incompletely obstructed, the decrease in aortic pressure disappears and compensatory reactions set in which relieve the heart. Such compensatory mechanisms are the passage of air into the left ventricle and the peripheral circulation, the absorption of air by the blood and the elimination of air into the alveoli. As can be demonstrated in postmortem examinations, large quantities of air may disappear from the blood. Functional disturbances produced by air embolism pass off quickly. The passage of air into the left ventricle may have serious effects because of embolism of the coronary vessels. This, however, occurs rarely. Twice as much air as corresponds to the beat volume was injected into the left ventricle without killing the animals, although coronary arteries were found embolized. Different species of animals apparently react differently; for instance, fibrillation occurs more frequently in dogs. The author says that it cannot be doubted that, following the rapid injection of large quantities of air into a vein, death results from blockage of the pulmonary circulation. If the objection is made that death under these conditions is not a cardiac death but is the result of cerebral anemia and respiratory arrest, this can be accepted only so far as the pulmonary blockage reduces the aortic pressure to zero and that this in turn is followed by cerebral anemia. However, the essential cause of death is nevertheless the fact that the heart is incapable of pressing the blood foam through the lungs. Only if, in case of embolism with small quantities of air, some of it reaches the left side of the heart and from there vital centers, for instance the respiratory center, could a primary respiratory arrest be assumed. This may happen occasionally, but since in the experiments the animals were under artificial respiration, asphyxiation can be excluded. The behavior of the cardiac frequency and of the blood pressure indicates that, by the injection of air into the heart, reflexes are elicited which in case of injection into the right side of the heart originate in the arterial and in case of injection into the left side of the heart originate in the venous portion of the pulmonary circulation or in the carotid sinus.

Bollettino d'Oculistica, Florence

18: 689-768 (Sept.) 1939. Partial Index

*Behavior of Arterial Pressure During Operations on Eyes: Utility of Bleeding. M. Focosi.—p. 689.
Rare Constitutional Sympathetic Disturbances Predisposing to Thrombosis of Central Retinal Vein. G. Basile.—p. 743.

Arterial Pressure During Operations on Eyes.—Focosi followed the behavior of the arterial blood pressure during operations on cataract or glaucoma in a group of 218 patients. He found that arterial pressure increases in all cases during operation (from 15 to 35 mg. of mercury, and in rare cases to 65 mg.). The increase is more acute in old than in young patients. The highest figures of blood pressure show by the end of the operation, especially if the latter is prolonged. In rare cases which are complicated by hemorrhage with elimination of the eye or elimination of the vitreous, the complication takes place when the arterial pressure is at its highest figures. An increase of the blood pressure during or after the operation does not take place in patients subjected to bleeding before the operation, or else the variations of the pressure are moderate. The best results from bleeding are obtained when the procedure is carried on twelve hours before performance of the operation and 400 or 500 cc. of blood is withdrawn. Bleeding induces a moderate transient lowering of the arterial blood pressure, with lowest figures in about twelve hours after its performance. Its main action consists in preventing the increase of arterial blood pressure which follows the operation and which is the pathogenic factor of primal importance for the development of postoperative hemorrhage with expulsion of the eye, elimination of the vitreous and detachment of the choroids, which may complicate operations on cataract or glaucoma. The author advises bleeding before the operation in all cases of hypertension, especially above 170 mg. of mercury, and when the intra-ocular pressure is probably high, as in glaucoma. That type of patient frequently reacts to the operation with hypertension. In either case bleeding is harmless unless there are contraindications, such as heart disease.

Rivista di Neurologia, Naples

12: 317-388 (Oct.) 1939. Partial Index

Epilepsy and Reflex Aphasia from Pulmonary Abscess. F. Virioli.—p. 317.
*Intraspinal Insufflations of Air in Meningococcic Cerebrospinal Meningitis. G. Murano.—p. 336.

Intraspinal Insufflations of Air in Meningococcic Meningitis.—In a previous article (*Pediatria* **47**:105 [Feb.] 1939) Murano reported the satisfactory results from the administration of intraspinal insufflations of sterile air (pneumo-encephalus) in association with antimeningococcus serum in the treatment of meningococcic cerebrospinal meningitis. In the first group of five infants who were suffering from acute and subacute forms of the disease there were four recoveries. The only failure was due to the presence of complete ventricular blockage when the treatment started. The treatment consists in administration of intralumbar injections of sterile air in doses varying from 15 to 25 cc. immediately followed by an intralumbar injection of antimeningococcus serum in doses varying from 8 to 20 cc. and an intramuscular injection of the same serum in doses of from 15 to 20 cc. The treatment is repeated every other day until three or four treatments are given. In this article the author reports satisfactory results from the treatment in seven cases in infants suffering from acute and subacute forms of the disease. All patients recovered. The author carried on x-ray examinations of the brain and found that the insufflations of sterile air keep the communications open between the ventricles and between the ventricles and the subarachnoid spaces and may break up the blockage of the ventricles and stimulate better conditions of circulation of the cerebrospinal fluid and elimination of the purulent fluid. By collateral researches on patients with normal meninges and those suffering from the disease the author found that the insufflations of sterile air increase the permeability of the barrier between the blood and the meninges in both groups of patients. The increased permeability from the treatment results in the passage of either antibodies or drugs from the blood to the cerebrospinal fluid in the course of the treatment with either meningococcic serum or with certain drugs,

such as sulfanilamide, which is valuable in the treatment of the condition. Administration of intraspinal insufflations of air is a harmless and well tolerated procedure. Neither early nor late complications were observed in the groups of patients seen by the author. They recovered without sequels.

Beiträge zur Klinik der Tuberkulose, Berlin

93: 549-699 (Oct. 21) 1939. Partial Index

Effects of Infectious Diseases on Tuberculosis of Infants and Pre-School Children. P. Zoelch.—p. 549.
*Icterus Simplex and Pulmonary Tuberculosis. H. Trautwein.—p. 594.
Pericavernous Atelectases and Their Significance for Suction Drainage of Cavities. J. Argemi and R. W. Müller.—p. 615.
Calcium and Tuberculosis. E. Wegemer.—p. 653.

Icterus Simplex and Pulmonary Tuberculosis.—Trautwein reports two cases of bilateral pulmonary tuberculosis temporarily aggravated by hepatitis. The first patient, aged 38, affected with hyperthyreosis, was steadily improving under artificial pneumothorax treatment when, about three and one half months after clinical observation had begun, icterus set in. The liver and spleen became somewhat enlarged and sensitive to the touch. Hepatic disorder was indicated by acholic feces, abundant bilirubin, brown discoloration of the urine and a rise in temperature. In spite of therapeutic measures taken for its control, it took some three weeks for the icterus to disappear. X-ray examinations taken after the evolution of the icterus showed an increased infiltration. The patient was reported to have gradually recovered. The second patient, aged 34, was progressively recovering when four months later a light but increasing attack of icterus occurred. Hepatic and splenic symptoms as well as external indications were noted similar to those in the first case. Similar medication was employed. In two and one half weeks the icterus passed away. Roentgenograms taken and repeated a month after its appearance disclosed activated infiltration in the second intercostal space. Artificial pneumothorax was resorted to. The patient finally was released as able to work. According to the author, the symptoms of the intercurrent disease were those of simple jaundice. The exacerbation of the tuberculous condition is ascribed by him to the damage done to the reticulo-endothelial cells of the liver, which, together with the spleen and bone marrow, conducts the chief defense against infections and intoxications. He regards attention to the proper functioning of the liver as highly significant in the treatment of pulmonary tuberculosis and points out the need of hepatic stabilization by means of vitamin C or other medication. Hepatitis such as icterus simplex in the course of pulmonary tuberculosis, he says, requires energetic management and makes careful observations of the tuberculosis mandatory.

Geburtshilfe und Frauenheilkunde, Leipzig

1: 629-676 (Oct.) 1939

Water Economy During Pregnancy. H. Albers.—p. 629.
Thyroid and Genital Function. F. Siegert.—p. 642.
*Therapeutic Application of Estrogen in Case of Prolonged Pregnancy and Primary Weakness of Labor Pains. R. K. Kepp.—p. 650.
Use of Stilbestrols for Inducing Delivery. K. Rosenkrans.—p. 659.
Deformities of Ventral Line of Closure: Umbilical Hernia and Gastroschisis. T. Pütz.—p. 663.
Eclampsia and the Newborn. H. Strauch.—p. 671.

Estrogen in Prolonged Pregnancy.—Kepp directs attention to the use of estrogen in cases of prolonged pregnancy. He says that it has not been explained as yet whether estrogen alone will elicit labor. He regards it as most probable that this substance prepares the uterine musculature for the action of the principle of the posterior lobe of the pituitary. At the women's clinic in Göttingen, estrogen has been used for more than a year in the induction of labor in cases of prolonged pregnancy and in cases of primary weakness of labor pains. The combined administration of quinine and solution of posterior pituitary having proved effective in about 50 per cent of such cases, it was decided not to dispense with this form of treatment. In the cases in which metrazol-quinine and solution of posterior pituitary had both been given four times (alternately at thirty minute intervals) without producing the desired effect, the same medication was repeated several days later and at this time it was supported with estrogen in doses of from 50,000 to 200,000 international benzoate units. The author describes the results obtained with this procedure in fifty-six probable, but not definitely demonstrated, cases of prolonged pregnancy. He gained the impression that there are cases of prolonged pregnancy in which estrogen can be used with success but that it is not effective in all cases and that it is impossible to foretell in which cases it will be helpful. In cases of primary weakness of labor pains, that is, when uterine contractions exist but are too weak or not frequent enough, estrogen seems to be more effective than it is in the induction of labor. In fifteen of eighteen cases in which labor pains were weak, the administration of from 50,000 to 100,000 international benzoate units was followed, after about thirty minutes, by a noticeable improvement in the uterine contractions. Furthermore, the uterus, which previously had been almost refractory to quinine and solution of posterior pituitary, now responded to these remedies.

Klinische Monatsbl. f. Augenheilkunde, Stuttgart

103: 353-560 (Oct.-Nov.) 1939. Partial Index

Brachydactylia and Congenital Spherical Lens as Systemic Disease. O. Marchesani.—p. 392.
*Pupil and Diencephalon. W. R. Hess.—p. 407.
Opacity in Shape of Aureole or Physiologic Manifestation on Anterior Surface of Lens. M. Bücklers.—p. 413.
*Episcleritis and Scleritis with Special Consideration of Episcleritis Periodica Fugax. R. Seefelder.—p. 417.
Hematogenic Metastases in Both Eyes in Mammary Carcinoma. H. R. Schinz.—p. 425.
Circumscribed Atrophy of Sclera in Aged Persons. W. Kyrieleis.—p. 441.
Eye Symptoms in Patients with Hypophysial Tumors. P. Karlbacher and H. R. Schinz.—p. 541.

Pupil and Diencephalon.—Hess employed electrical stimulation and exclusion of diencephalic areas in his studies on the effect of the diencephalon on the pupillomotor reactions. The experiments, which were made on cats, revealed that the diencephalon influences the width of the pupils. Stimulation of the diencephalic regions elicits the miotic as well as the mydriatic mechanisms. The pupillomotor effects that are elicited by way of the diencephalon are characterized by bilaterality, even if the diencephalic stimulation was unilateral. Another peculiarity of diencephalic influences on pupillomotor reactions is their coupling with other symptoms. Dilatation of the pupils is always accompanied by symptoms of excitation, whereas pupillary contraction concurs with signs of diminished activity. On differentiating electrical examination, the diencephalic action spheres, in the hypothalamus as well as in the thalamus, are separated into an anterior field, which exerts a contracting effect, and a posterior and partly laterally located field, which exerts a dilating effect. Evaluating the clinical significance of these observations, the author stresses that, when central disturbances are suspected, the width of the pupils must be controlled with regard to absolute or standard illumination; that is, it has to be determined whether under standard illumination the pupil is too wide or too narrow. Furthermore, it is necessary to watch for accompanying symptoms. It must be remembered that unilateral focal symptoms cause bilateral pupillary changes when their cause is in the posterior hypothalmus, bilateral but dissimilar pupillary changes when their cause is in the lateral hypothalamus. In connection with the question whether experimental observations on cats permit conclusions regarding conditions in human subjects, the author states that the relatively primitive regulatory mechanisms controlled by the sympathetic nervous system have considerable uniformity throughout the entire scale of vertebrates. Nevertheless, the final decision must be based on clinical observations.

Episcleritis Periodica Fugax.—Seefelder had the opportunity to observe a patient with episcleritis periodica fugax for more than three years. Quinine and cinchophen had been tried earlier without noticeable effect. Internistic, otolaryngologic and dental examination disclosed only a paradentosis, which was subjected to energetic treatment. After this the attacks of episcleritis periodica fugax became for a time somewhat less frequent but then they recurred again with undiminished frequency and intensity. Dietetic and balneologic treatments were without noticeable influence. In order to reduce the painfulness of the individual attack, cocaine, epinephrine, ephetonine and so on were given. The author points out that some investigators have designated episcleritis periodica fugax as an allergic disorder. In this connection he points out that in the reported case the episcleritis was especially severe in the course of a bartholinitis and he thinks that the toxins circulating in the blood during

the bartholinitis played an important part. During an attack of influenza, the episcleritis was likewise especially severe. He deduces from this an abnormal reactivity of the episcleral tissue, which responds to all types of irritation with inflammation. In order to reduce this intensified reactivity, the author decided to resort to desensitization, the more so since desensitizing treatment had been recommended before. Every second day the patient was given an intravenous injection of sodium thiosulfate and an intradermal injection of peptone. After fifteen injections of thiosulfate and sixteen injections of peptone, the attacks of episcleritis became less frequent and milder. Later the patient was given ten injections of torantil (a protein preparation) and after that five intramuscular injections of detoxin (a peptone). The latter injections were discontinued at the patient's request. Since the attacks of episcleritis still recurred, intramuscular injections of calcium were tried. In the course of this treatment the attacks of episcleritis ceased for a period of six months and the author thinks that this improvement is not mere accident. He reports another case in which attacks of episcleritis became less frequent and less severe following twenty intravenous injections of sodium thiosulfate and twenty intradermal injections of peptone. In still another case he resorted at once to injections of calcium. Finally he reports a case of severe intra-ocular inflammation which had been diagnosed as iritis and episcleritis. In this case enucleation had to be resorted to and a microscopic examination became possible. The changes discovered in the course of the microscopic studies indicate tuberculosis, and so this case seems to corroborate Oberhoff's contention that tuberculosis plays an important part in the etiology of scleritis.

Zeitschrift f. Geburtshülfe u. Gynäkologie, Stuttgart

119: 253-384 (Oct. 10) 1939. Partial Index

Results of Treatment of Women with Primary and Secondary Sterility. A. Meier.—p. 253.
Occurrence and Characteristics of Lactation Hormone of Hypophysis. F. Lessman.—p. 271.
*Interruption of Pregnancy by Male Gonadal Hormone. A. Binder.—p. 285.
Experiments with Synthetic Estrogenic Substance. C. Fátyol.—p. 294.
Results of Treatment of Placenta Praevia at Women's Clinic in Giessen, Demonstrated on cases Treated Between 1915 and 1937. H. Bergk.—p. 304.
Has Prognosis of Eclampsia Changed? H. Ruhl.—p. 328.
Torsion of Pedicle of Ovarian Tumors in Children. J. W. Miller.—p. 336.

Interruption of Pregnancy by Male Gonadal Hormone.—Binder maintains that the preservation of pregnancy is subject to hormonal laws and that a disturbance within this hormonal correlation threatens or completely interrupts pregnancy. The question arises whether, by causing a deviation within this hormonal equilibrium of pregnancy, it is possible to terminate gestation prematurely. Since experiments with female gonadal hormones resulted in failure or produced results that were not convincing, it was decided to try male hormones. Experiments with testicular extracts on pregnant rabbits, carried out by Neumann and Hofmeister, did not produce uniform results and so the authors made additional experiments on pregnant rabbits. They used a male hormone preparation in which sesame oil served as the solvent. The first group of animals was given intramuscular injections of the hormone preparation for five days, beginning with the thirteenth day of gestation. The second group of animals was given hormone injections for four days, beginning with the twenty-first day. The third group received hormone injections from the eighteenth day of gestation. A fourth group, which served as a control, was given injections with the solvent, beginning with the thirteenth day of pregnancy. These control animals produced viable young. This proves that the abortions at various stages of pregnancy in the animals which were subjected to hormonal treatment was brought about by the male sex hormone. Regarding the practical significance of their observation on the possibility of producing abortion in animals by the administration of male hormones, the authors say that they do not advise the application of this method to human subjects. They reject even the experimental use in human subjects, chiefly because the biology and the behavior of the male hormone in the intermediate metabolism is not sufficiently understood as yet and harmful effects cannot be completely excluded. However, they hope that further animal experiments will throw more light on this problem and that hormonal interruption of pregnancy may become clinically applicable. They also describe microscopic studies on the incretory organs of their test animals. The greatest changes were observed on the ovaries, and on the basis of these changes they assume that the male hormone preparation which they used for their experiments on pregnant animals has its point of attack in the ovary.

Zeitschrift für Immunitätsforschung, Jena

96: 361-522 (Oct. 2) 1939. Partial Index

Immunobiologic Foundations of Cadham's Rabbit Serum Therapy in Streptococcic and Staphylococcic Sepsis. H. Yü-Djin.—p. 361.
Transmission of Leptospiroses to Mice. H. Hiroki.—p. 396.
Fate of Capsular Substance (P Substance) of Anthrax Bacillus in Organism. G. Ivanovics.—p. 408.
*Serologic Investigations on the Spirochete of Field Fever ("Spirochaeta Grippo-Typhosa"). B. Karakašević.—p. 427.
Influence of Metals on Toxin Formation of Diphtheria Bacteria. H. O. Hettche and M. Becker.—p. 440.
Leptospiroses in Workers of Rice Fields of Upper Italy. P. Mino.—p. 466.
Experiments on Protective Inoculation Against Tsetse Fly Disease. C. Schilling.—p. 521.

Serology of Spirochete of Field Fever.—Karakašević shows that serologic methods not only make possible the differentiation of Spirochaeta icterohaemorrhagiae from morphologically identical forms of leptospira but also reveal that the antigen apparatus of the different strains of Weil's spirochete is not uniform but consists of various factors, that is, it is composed of so-called partial antigens. The author investigated to what extent such antigenic deviations are found in other types of spirochetes. He reports his observations on a number of strains of Spirochaeta grippotyphosa, which Rimpau obtained from the blood of patients with field (or harvest) fever. Reports on this type of spirochetal fever appeared in the *Münchener medizinische Wochenschrift* (**85:**1977 [Rimpau] and 1979 [Joerdens] Dec. 23, 1938); the article by Joerdens was abstracted in THE JOURNAL Feb. 18, 1939, page 678. The author made comparative serologic tests on strains of the spirochete of field fever, on strains of the spirochete of Russian water fever and on a spirochetal strain obtained from Sumatra. In this connection he points out further that the mud fever epidemic which occurred during 1926-1927 in the region of the Oder was also of spirochetal origin. Other investigators had proved that the spirochete which causes Russian water fever is serologically differentiable from that causing Weil's disease and that the so-called field or harvest fever is identical with the Russian water fever as well as with the so-called mud fever. Thus it seems that the latter forms of leptospirosis is comparatively widely disseminated. It differs from Weil's disease in that it does not cause icterus; its correct diagnosis requires serologic tests, and if these are not made it may be confused with influenza. The author describes his serologic studies on the aforementioned strains of spirochetes and records the results of his tests in tables. He found that the causal organism of field fever (Spirochaeta grippotyphosa) has no uniform antigen apparatus but that the antigen is composed of several factors, so-called partial antigens. So far he has succeeded in isolating two different type specific antigens which usually concur but which may also occur alone. The antiserums obtained by the immunization of several rabbits with the same strains of Leptospira differ in antigen content toward the same homologous strains. The transmitted action of these immune serums on heterologous strains, however, apparently is greatly or entirely independent of the individual peculiarities of the animal organism but goes parallel to the height of the titer (toward the homologous strain).

Zeitschrift für Kinderheilkunde, Berlin

61: 265-422 (Oct. 5) 1939. Partial Index

Pathogenesis of Hydrocephalus Internus: Comparison of Neurologic, Roentgenologic and Anatomic Aspects. W. Bremer.—p. 265.
Essential Hypochromic Anemia During Childhood. R. Garsche.—p. 302.
Artificial Feeding of Nurslings. G. Malyoth.—p. 316.
Changes in Antitoxin Titer in Protective Inoculation Against Diphtheria. O. Ernst and F. Allin.—p. 351.
Some Problems in Care for Prematurely Born Infants. A. Meier.—p. 355.
*Observations on Relations Between Rickets and Tetany. E. Hennig.—p. 379.
Pneumonia in Children. J. Duken.—p. 397.

Relations Between Rickets and Tetany.—Hennig reports studies on the chemical composition of the blood of 140 rachitic nurslings. The blood specimens were withdrawn in the morning, after no food had been taken for at least six hours. The calcium

values in the serum were determined according to Clark's method and the organic phosphorus was estimated according to the colorimetric method of Bell and Doisy. All children were given repeated examinations. The investigations revealed that only twenty-five (17.8 per cent) of the children had a purely rachitic disturbance of the metabolism. The remaining 115 children (82.2 per cent) had also tetany. In thirty-six children the tetany was latent, in seventy-nine it was manifest. These figures indicate that the incidence of tetany has greatly increased in recent years. It was observed also that pure rickets as well as the combination of rickets and tetany had the greatest incidence during the same months (April and May). The anorganic phosphorus in the serum exceeded 4 mg. per hundred cubic centimeters in only 40 per cent of the children with tetany; in 60 per cent of the children it was within the range of the rachitic values. Some of the children had values which corresponded to the lowest ones in pure rickets. The absolute (or relative) "phosphate stasis" (of Freudenberg and György) is thus not an obligatory symptom of tetany and it cannot be of essential significance in the development of the symptoms of tetany. The author shows that the results of his studies contradict not only the theory of Freudenberg and György, according to which tetany is a condition that develops during the cure of rickets, but also the theory of Rominger and Meyer, according to which tetany develops as the result of a too hasty cure of rickets. That rickets and tetany have their maximum during the same months and other factors which the two disorders have in common indicate that the two conditions depend on a common superordinated disturbance. Moreover, tetany existed in 82.2 per cent of the children with untreated rickets and it is unlikely that in all these children rickets was in the process of being cured.

Zeitschrift für Krebsforschung, Berlin

40: 217-340 (Sept. 23) 1939. Partial Index

Ferment Problem and Cancer. A. von Christiani.—p. 221.
Heredity of Carcinoma. W. Denk.—p. 237.
Irradiation of Advanced Cancer and Social Indications in Cancer Therapy. Leb.—p. 248.
Present Status of Surgical Treatment of Laryngeal Carcinoma. H. Marschik.—p. 250.
Carcinoma of Vallecula. E. Wessely.—p. 274.
*New Restorative Operation Following Partial Extirpation of Larynx. Brünings.—p. 278.
Demarcation of Indications for Surgical Treatment and Irradiation in Treatment of Cancer. L. Schönbauer.—p. 287.
Etiology of Tumors. F. Kogl.—p. 291.

Restorative Operation After Partial Extirpation of Larynx.—According to Brünings, the severe mutilations resulting from the operations for advanced carcinoma of the larynx represent a great disadvantage of these methods. He thinks that in case of total extirpations these defects (lack of natural respiration and of voice) are probably unavoidable but that in the partial resections (typical lateral resection, two thirds resection and resection of frontal half) it should be possible to restore the respiratory tract and the voice by a plastic operation. In developing such a method he decided to use as a temporary tube-shaped supporting prosthesis a spiral of silver wire. The wire is from 0.3 to 0.6 mm. thick and the internal diameter of the spiral measures from 6 to 14 mm. The author discusses the advantages of such spirals in plastic operations and describes how they are introduced and secured. Further he describes and illustrates the cutting of the flaps that are joined over the spiral in order to repair the defect. He employed this restorative procedure in fourteen cases not only after lateral extirpations but even in some cases in which almost two thirds extirpation had been done. The plastic repair was never made until at least from six to twelve months had elapsed since the tumor operation. During this time, relapses were carefully watched for. The closure of the defect was accomplished in all of the cases in which the author resorted to his plastic method. The fact that in some of the cases more than three years has elapsed since the plastic operation indicates that its results are permanent and that fear of a subsequent stenosis by shrinkage of the plastically restored portion of the larynx or by atrophy of the skin with flutter and aspiration is not justified. The latter complication developed in one extremely emaciated patient two and one half years after the intervention. The author stresses that the method is reliable and not dangerous and that it requires only average surgical skill. Its value becomes evident when it is considered that it removes the mutilation caused by the partial resection of the larynx, which is the most frequent intervention in internal laryngeal cancer. In repairing the mutilation the restorative operation also removes the psychic, social, hygienic and professional disadvantages of the partial laryngeal resection. The author thinks that in view of this possibility of repair the partial resection will be used even more widely than it was formerly; for instance, it may replace not only laryngofissure with chordectomy but also the extremely mutilating total extirpation.

Zeitschrift für Tuberkulose, Leipzig

83: 63-256 (Oct.) 1939. Partial Index

Problems of Pulmonary Tuberculosis in Children: Epituberculosis or Infiltration? H. Alexander.—p. 83.
Systematic Occupation and Training in Plan of Treatment of Tuberculous Children. H. Alexander and Gerda Baumann.—p. 107.
*Urinary Observations and Their Significance in Tuberculous Children. Aline Aicham.—p. 119.
Significance of Form and Size of Tuberculous Cavities of Lung for Pulmonary Collapse Therapy. H. Arpe.—p. 126.
Modification of Tuberculous Cavity by Contralateral Pneumothorax. A. Beckmann.—p. 137.

Urinary Observations in Tuberculous Children.—Aicham maintains that in all children with pulmonary as well as with extrapulmonary tuberculosis the urine should be examined at regular intervals not only for albumin but also for its reaction, specific gravity, sediment and bacteria. Urinary changes of some kind are quite frequent in children with a chronic disease and their interpretation usually requires prolonged observation in connection with the clinical course of the primary disease. The author reports the incidence and the character of the pathologic conditions of the urine in 549 tuberculous children. Slight deviations from the normal which lasted only a brief time were disregarded. Renal irritations caused by medicaments were likewise disregarded. In 106 of the cases the examination of the urine disclosed pathologic conditions which persisted for weeks, months or even years. In fifteen of these 106 children a final estimation of the urinary changes proved impossible. Analyzing the observations on the remaining ninety-one patients, the author takes up first twenty cases of cystitis, eighteen of which concerned girls and two boys. The disorder was chronic in the majority of the cases. Among the eighteen girls there were only four who were able to walk around (two with pulmonary and two with glandular tuberculosis). The others had various forms of tuberculosis of the bones, which confined them in a more or less fixed position. The general condition was never noticeably influenced by the cystitis. In thirteen cases of nontuberculous nephritis there always existed hematuria and cylindruria. The general condition was regularly impaired in the cases in which the nephritis had an acute onset, whereas in the chronic cases this was not the case. Following remarks about two cases of engorged kidney, the author says that in all the aforementioned cases the disorder was relatively benign. However, she thinks that in spite of the benign character these disorders require therapeutic consideration, particularly in the form of a bland diet with a low salt content. In the second part of her report she discusses the more numerous cases in which the urinary disorders were much more grave and in which they were directly related to the tuberculosis. In twenty-three cases toxic irritation of the kidneys was detected. It was also observed that renal tuberculosis is not a rarity during childhood, for of seven cases of renal tuberculosis three concerned children less than 11 years of age. That elimination of tubercle bacilli with the urine is possible in the absence of renal tuberculosis could be demonstrated in four cases. In two other cases there existed a genital in the absence of a renal tuberculosis. Amyloid degeneration of the kidneys, which occurs almost exclusively in fistulous bone tuberculosis, was observed in twelve boys and in one girl. The connection between tuberculosis and lithiasis is still a disputed problem; the author observed two cases of renal, two of ureteral and one of vesical lithiasis among the tuberculous children.

Zeitschrift für Urologie, Leipzig

33: 625-660 (No. 10) 1939

Conservative Renal Surgery. W. Heckenbach.—p. 625.
*Development of Epididymitis Following Trauma. R. Frühwald.—p. 650.
Congenital Renal Hypoplasia. L. Zeiss.—p. 652.

Epididymitis Following Trauma.—Frühwald reports observations which he made on persons who developed epididymitis after trauma. He describes nine cases. All these patients stated that before the trauma they had been free from disturbances of the urinary apparatus. X-ray examination of the urinary apparatus disclosed pathologic changes in the prostate of seven of the nine patients. The author believes that the streak-like shadows indicate dilated passages of the prostate and that the round or roundish shadows are abscesses of the prostate. He thinks that from these prostatic foci the infection spread to the epididymis and that these cases prove once more that even in the nonspecific forms of epididymitis after trauma the cause may be found in inflammatory changes of the posterior urethra and its adnexa.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

83: 5333-5446 (Nov. 11) 1939. Partial Index

Kala-Azar and Treatment with Antimony. J. L. C. Overbosch.—p. 5335.
Experiments with Tampons and Membranes Prepared from Collagen. H. Feriz.—p. 5343.
*Investigations on Influence of Artificial Heliotherapy (Quartz Lamp) in Vacation Colony. H. Lugt, P. Lakeman and N. Lubsen.—p. 5349.
Determination of Blood Volume by Means of Blue T. 1824. E. Lopes Cardozo.—p. 5357.

Irradiation with Quartz Lamp in Vacation Colony.—Lugt and his collaborators report that children who were in a vacation colony at a seaside resort during the winter months were daily exposed to ultraviolet radiation. Quartz lamps were set up in the room where the children were playing, dressed in swim suits. On the first day they were subjected to this irradiation for ten minutes. The period of irradiation was extended daily by five minutes until forty-five minutes had been reached. Otherwise the children were given the usual treatment. They had been selected for the six weeks stay in the vacation colony by the school physician; all of them were weak but healthy. In order to determine a possible influence of the quartz lamp irradiation the authors examined the hemoglobin content and the weight of children who had not received irradiations and in those who had. Studies were made on five groups (a total of 326 children). It could not be demonstrated that the irradiation augmented the hemoglobin content. As regards the increase in weight, the favorable influence of irradiation must be doubted. Some of the children were reexamined three weeks after they had left the vacation colony and it was found that the hemoglobin content was noticeably greater in the irradiated children than in those who had not been irradiated. At any rate there are indications that other influences such as good food and change of surroundings predominate over the possible influence of quartz lamp irradiations. The authors were able to confirm that the augmentation in the hemoglobin content was greatest in the children who were admitted to the colony with a low content.

Acta Pædiatrica, Stockholm

27: 1-136 (Oct. 31) 1939. Partial Index

Pneumonia Diagnosis in Early Childhood. C. Friderichsen.—p. 1.
Studies on Effect of Intraperitoneal Blood Transfusion. J. Clausen.—p. 24.
*Malignant Form of Gaucher's Disease. Cornelia de Lange.—p. 34.
Cerebellar Form of Saturnine Encephalopathy. A. Biemond and S. van Creveld.—p. 51.
Acute Lymphatic Leukemia in Unioval Twins: I. Etiology. H. Jelke. p. 87.

Malignant Form of Gaucher's Disease.—De Lange reports a case of malignant Gaucher's disease. The infant was the third child born of healthy parents. The first child had died at the age of 6 months with symptoms typical of Gaucher's disease. Normal birth of the third child was followed in about two and one half months by a pathologic condition characterized by the child's persistence in holding his head and neck rigidly backward. The raising of his legs in routine care would evoke cries of pain. The case history in summary form discloses the following characteristics: cerebral phenomena of a more or less extrapyramidal nature such as hypertonia, mobile spasms, opisthotonos and motor debility accompanied with mental sluggishness; significant enlargement of the spleen and liver with numerous yellow spots macroscopically visible; leukopenia and thrombopenia, and febrile elevations that could not be accounted for. Among the congenital abnormalities were found a peculiarity of cranial formation, deformed ears and partial albinism of the fundus oculi. No spleen puncture was performed. Lumbar puncture was nonpathologic. Puncture of the bone marrow of the tibia revealed no large cells. The child died when about 5 months old of dysphagia, infection of the upper respiratory organs and general cachexia. The clinical picture of congenital malignant Gaucher's disease is dominated by phenomena of the central nervous system which may vary. The following are indicated: a normal birth followed by hypertonia, opisthotonos, respiratory difficulties, splenohepatomegaly, skeletal normality under x-ray inspection and motor inhibitions. Convulsions, Kernig's sign, leukopenia, thrombopenia, convergent strabismus and irregularity of the fundus oculi constitute divergent features. According to the author the reported cases number fifteen, all found in eight families. More extensive cerebral examinations are desirable when this disease is found and greater attention to small congenital, physical abnormalities. The prognosis is highly unfavorable. Congenital malignant Gaucher's disease has a rapid fatal evolution.

Nordisk Medicin, Helsingfors

4: 3237-3290 (Nov. 4) 1939. Partial Index

Hygiea

*Renorenal Reflex. O. Sandström.—p. 3273.
Statistic Method for Experiments in Therapy of Psychoses: 1. Metrazol Treatment With and Without Convulsions. S. Stenberg.—p. 3278.

Renorenal Reflex.—In the first of Sandström's cases, with concrement in the left ureter, there was a renorenal reflex in the form of a transitory complete cessation of secretion from the contralateral kidney, and in the second case a similar renorenal reflex occurred after trauma of the opposite kidney. He says that these two cases together with the third, in which bilateral stopping of secretion and complete anuria were due to a unilateral ureter concrement, illustrate the role of the vasomotor nerves in the origin of such pathophysiologic conditions. In the first case there was also a sensitive renorenal reflex in contralateral attacks of pain. The physiologic action of the roentgen rays in the treatment of anuria was seen in the third instance, in which the reflex angiospasm in the kidneys ceased on irradiation. The therapeutic effect of the roentgen rays seems to support the conception of the anuria as primarily dependent on a bilateral cessation of secretion through vasomotor nerves analogous to the unilateral disturbances in secretion in the first two cases.

4: 3291-3356 (Nov. 11) 1939

Hygiea

Complications Due to Sulfonamide Derivatives: Fatal Case of Granulocytopenia. M. Sjöholm.—p. 3339.
*Atrophy of Spleen. N. G. Nordenson.—p. 3342.
Unusual Form of Postoperative Parathyroidal Insufficiency. K. Östling. —p. 3344.
Finger Prostheses Made by Vulcanizing Together Hard and Soft Rubber. S. Orell.—p. 3346.

Atrophy of Spleen.—Nordenson asserts that when the spleen is pathologically reduced in size there may be splenic aplasia, hypoplasia or atrophy. He describes a case with typical clinical picture of atrophy of the spleen, having a history of marked disturbances in digestion with periods of diarrhea alternating with periods of normal feces, increased urobilin content in the urine, a strongly positive Takata reaction, hyperchromatic megalocytic anemia, leukopenia and a mild thrombopenia. In all differential counts a shift to the left appeared, with abundant red blood corpuscles containing Jolly bodies and numerous normoblasts. The digestive disturbance is considered specially interesting, since atrophy of the spleen is so frequent in nontropical sprue (Engel) that a causal relation is assumed, and the author thinks that this case was probably one of nontropical sprue.